Dr. Tomáš Oberding
Hydrologist, Adv-District 1
New Mexico Oil Conservation Division
1625 French Drive
Hobbs, NM 88240

Arcadis U.S., Inc.
1004 North Big Spring Street
Suite 300
Midland
Texas 79701
Tel 432 687 5400
Fax 432 687 5401
www.arcadis.com

Environment

Subject:
Submittal of 2016 Annual Groundwater Monitoring Report
Indian Basin Gas Plant AP-107
Eddy County, New Mexico

Date:
June 26, 2017

Contact:
Hank W. McConnell

Phone:
432-687-5400

Email:
hank.mcconnell@arcadis.com

Our ref:
MT001115.0002

ARCADIS U.S., Inc.

Dear Dr. Oberding:

On behalf of Glenn Springs Holdings, Inc (a subsidiary of Occidental Petroleum Corporation), Arcadis is submitting the attached Annual Groundwater Monitoring Report for the Indian Basin Gas Plant (AP-107) located in Eddy County, New Mexico. The New Mexico Oil Conservation Division (NMOCD) requires groundwater monitoring of 15 wells at the site and submittal of an annual report documenting the groundwater monitoring activities.

If you should have any questions, please contact me at (432) 687-5400.

Sincerely,

Arcadis

Hank W. McConnell
Principal Hydrogeologist

Copies:

Suda Arakere, VP Environmental Affairs, Glenn Springs Holdings, Inc.

ARCADIS Design & Consultancy for natural and built assets

Glenn Springs Holdings, Inc. A subsidiary of Occidental Petroleum Corporation

2016 ANNUAL GROUNDWATER MONITORING REPORT

Indian Basin Gas Plant

Eddy County, New Mexico

May 2017

,

2016 ANNUAL GROUNDWATER MONITORING REPORT

Indian Basin Gas Plant

Eddy County, New Mexico

Aaron R. Sides

Environmental Scientist

Hank W. McConnell, P.G.

Principal Hydrogeologist

David B. Vance

Technical Expert

Prepared for:

Suda Arakere

VP Environmental Affairs

Glenn Springs Holdings, Inc.

5005 LBJ Freeway, Suite 1350

Dallas, TX 75244-6119

Prepared by:

Arcadis U.S., Inc.

1004 North Big Spring Street

Suite 300

Midland

Texas 79701

Tel 432 687 5400

Fax 432 687 5401

Our Ref.:

MT001115.0002

Date:

May 22, 2017

CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

BTEX	Benzene, Toluene, Ethylbenzene, Xylene
IBGP	Indian Basin Gas Plant
IBRP	Indian Basin Remediation Project
NMOCD	New Mexico Oil Conservation Division
OXY	OXY USA WTP Limited Partnership
Site	Indian Basin Gas Plant
TDS	Total Dissolved Solids

EXECUTIVE SUMMARY

This report documents the results from the May 2016 annual groundwater monitoring event, and the December 2016 semi-annual gauging event, and provides historical groundwater monitoring documentation. The 2016 annual groundwater monitoring event was conducted from May 23, 2016 through May 25, 2016, and included the gauging of depth to groundwater and non-aqueous phase liquid thickness of 15 monitoring wells (seven in the Shallow Zone and eight in the Lower Queen) and sampling of monitoring wells for BTEX, TDS and chloride. On December 6, 2016, semi-annual gauging of depth to groundwater and non-aqueous phase liquid thickness of 15 monitoring wells (seven in the Shallow Zone and eight in the Lower Queen) was conducted.

Liquid-level measurements obtained from each well in May 2016, and December 2016 and the surveyed well elevations were used to calculate groundwater elevations, with density corrections to the water level where condensate was present. The resulting elevation data were used to generate groundwater piezometric contour maps for the Shallow Zone and Lower Queen aquifers. Review of these maps and the elevation data indicate Shallow Zone and Lower Queen groundwater flow was generally consistent with patterns observed in previous years. Flow in the Shallow Zone is to the southeast at an approximate gradient of 0.007 ft/ft, and flow in the Lower Queen is generally to the northwest at an approximate gradient of 0.0003 ft/ft.

In May 2016, groundwater samples were collected from four Shallow Zone monitoring wells (MW-14, MW-45, MW-49, and MW-106) and five Lower Queen monitoring wells (MW-66, MW-70, MW-88, MW-111 and MW-127). The purging and sampling techniques utilize low-flow procedures and were approved and implemented in 2003. Shallow Zone monitoring well MW-126 and the Lower Queen monitoring wells MW-58 and MW-81 and MW-113 were not sampled, due to the presence of condensate. The analytical results indicate that BTEX concentrations in the sampled Shallow Zone monitoring wells were below NMOCD regulatory levels except in MW-49 (13.4 µg/L). In addition, BTEX concentrations in the five sampled Lower Queen wells were below NMOCD regulatory limits. In general, TDS and chloride concentrations in the sampled Shallow Zone monitoring wells were within historical levels, and TDS and chloride concentrations in well MW-106 was below NMOCD regulatory limits. The TDS in MW-14 (1,400 mg/L), MW-45 (5,400 mg/L), and MW-49 (4,900 mg/L) exceeded the NMOCD regulatory limit of 1,000 mg/L. Chloride in MW-14 (266 mg/L) and MW-49 (379 mg/L) exceeded the NMOCD regulatory limit of 250 mg/L. The TDS and chloride concentrations in the sampled Lower Queen wells were all below NMOCD regulatory limits.

Groundwater monitoring at the site will continue to be conducted according to the requirements outlined in the February 20, 2009 NMOCD letter. Based on the current program schedule, the next annual groundwater monitoring event will be conducted in April 2017 and the semi-annual groundwater gauging event will be conducted in October 2017. An annual report will be prepared at the conclusion of each Fall groundwater gauging event and will be submitted to the NMOCD.

INTRODUCTION

Arcadis has prepared this Annual Groundwater Monitoring report on behalf of OXY USA WTP Limited Partnership (Oxy) for the Indian Basin Remediation Project (IBRP) at the Indian Basin Gas Plant located in Eddy County, New Mexico. This report presents the results of the May 2016 semi-annual groundwater gauging event, the annual groundwater monitoring event conducted in December 2016, and includes historical groundwater monitoring data. This report has been prepared in accordance with the groundwater monitoring requirements outlined in correspondence by the New Mexico Energy, Minerals, and Natural Resources Department, New Mexico Oil Conservation Division (NMOCD) to Marathon Oil Company dated February 20, 2009 prior to OXY operating the facility.

BACKGROUND

The IBGP (site) is located approximately 20 miles northwest of Carlsbad, New Mexico, as shown on Figure 1. The site is situated in Township 21 South, Eddy County, and occupies portions of Range 23 East (Sections 13, 23, 24, 25, and 26) and Range 24 East (Sections 19 and 30). Remediation efforts at the site were initiated in April 1991 and were designed to remove separate-phase petroleum hydrocarbons present in the subsurface, primarily condensate.

The geology underlying the site is comprised of two distinct zones, both with saturated and unsaturated strata. The geologic units are referred to as the Shallow Zone and the Lower Queen. Prior to March 2003, there were a total of 150 wells (78 Shallow Zone and 72 Lower Queen) and two shallow sumps present at the site related to the IBRP. However, with NMOCD approval, 39 Shallow Zone wells were plugged and abandoned in March 2003, reducing the well total to 111 wells and two shallow sumps. The remaining wells and two sumps were used for a combination of groundwater monitoring, groundwater and condensate recovery, treated groundwater infiltration and condensate vapor extraction.

In May 2008, a report titled Evaluation of Natural Attenuation, Indian Basin Remediation Project, Eddy County, New Mexico was submitted to the NMOCD. The report described the natural attenuation processes occurring at the site and recommended closure of the IBRP. In addition, a letter with the reference title Proposed Indian Basin Remediation Project Well Plugging Program was submitted to the NMOCD in February 2009. The NMOCD responded to the May 2008 report and February 2009 plugging program letter in correspondence dated February 20, 2009. In the February 20, 2009 correspondence, the NMOCD stated that the report and well plugging request were substantially acceptable, and conditionally approved the discontinuance of active remediation at the site. However, the NMOCD required at least annual groundwater monitoring for BTEX, TDS and chloride for a total of 15 wells, and semi-annual gauging of depth to groundwater and non-aqueous phase liquid thickness. In addition, the NMOCD required that an annual groundwater monitoring report must be submitted. The NMOCD correspondence is included in Appendix D.

In March and April 2009, a total of 95 wells (including the two shallow sumps) were plugged and abandoned. Three water supply wells (SW-1, SW-2 and SW-3) originally included in the proposed plugging program were not plugged, because they are needed to supply water for site operations. A report documenting the well plugging activities was submitted to the NMOCD in June 2009. The NMOCD approved the plugging report through email correspondence dated June 17, 2009 (Appendix D).

Table 1 lists the 15 wells remaining in the groundwater monitoring program and monitoring requirements. Figure 2 depicts the site layout, including the locations of remaining Shallow Zone and Lower Queen wells. Additional details regarding local and regional geology and hydrogeology are presented in the report titled Comprehensive Site Characterization Report for the IBRP, submitted to the NMOCD in December 1998.

GROUNDWATER AND CONDENSATE GAUGING

Groundwater gauging was conducted in May 2016, and December 2016. The gauging events consisted of collecting liquid-level measurements from the wells listed in Table 1 for both the Shallow Zone and Lower Queen. The results of the gauging events as well as precipitation recharge (rainfall) are discussed in the following sections. A summary of the May 2016 groundwater gauging results is provided in Table 2. The December 2016 groundwater gauging results are summarized in Table 3. Historical groundwater gauging data for the remaining monitoring wells at the site are presented in Appendix A.

Shallow Zone Aquifer

The seven monitoring wells completed in the Shallow Zone were gauged during the May 2016 and December 2016 events. The liquid-level measurements and the top of casing elevations for the wells were then used to calculate the groundwater elevation at each well. Density corrections to the water level elevations were made where condensate was present.

From October 2015 to May 2016 groundwater levels (including density corrections for condensate if present) decreased in Shallow Zone wells MW-14 (2.81 ft.), MW-45 (2.35 ft.), MW-46 (1.47 ft.), MW-49 (0.46 ft.), MW-106 (1.75 ft.), and MW-126 (1.47 ft.) The groundwater level in MW-77 increased (0.16) from October 2015 to May 2016. During the October 2015 and May 2016 gauging events, measurable condensate was only detected in Shallow Zone monitoring well MW-126. The condensate thickness measured in MW-126 was 0.27 feet in October 2015 and May 2016. Historically, the condensate thickness in MW-126 has ranged between 0 and 3.96 feet.

From May to December 2016 groundwater levels (including density corrections for condensate, if present) increased in Shallow Zone wells MW-14 (0.85 ft.), MW-45 (1.08 ft.), and MW-126 (4.77 ft.) while the groundwater levels decreased in MW-46 (0.36 ft.), MW-49 (0.21 ft.), MW-77 (0.03 ft.) and MW-106 (0.17 ft). During the May and December 2016 gauging events, measurable condensate was only detected in Shallow Zone monitoring well MW-126. The condensate thickness measured in MW-126 was 0.69 feet in December 2016.

Groundwater elevation contour maps were prepared based on the May 2016 and December 2016 groundwater elevation measurements (Figures 3 and 7). As shown on Figures 3 and 7, the observed groundwater flow direction in the Shallow Zone is to the southeast at an approximate gradient of 0.007 ft./ft. The flow direction and gradient are generally consistent with historical patterns.

Lower Queen Aquifer

The eight monitoring wells completed in the Lower Queen were gauged during the May 2016, and December 2016 gauging events. The liquid-level measurements and the top of casing elevations for the

wells were then used to calculate the groundwater elevation at each well. Density corrections to the water level were made as required where condensate was present.

During the May 2016 and December 2016 gauging events, trace condensate was observed in Lower Queen monitoring wells MW-58, MW-81 and MW-113. Historically, condensate thickness ranged from 0 to 5.26 feet in MW-58, 0 to 12.08 feet in MW-81 and 0 to 0.88 feet in MW-113. It should be noted that the water level elevation in MW-58 has experienced broad fluctuations over the last part of 2015 to the most recent gauging in 2016. The cause of this fluctuation is unclear, however, it has been reported historically in the gauging events conducted in 2001.

Groundwater elevation contour maps were prepared based on the May 2016 and December 2016 groundwater elevation measurements (Figures 4 and 8). As shown on Figures 4 and 8, the observed groundwater flow direction in the Lower Queen is generally to the northwest at an approximate gradient of 0.0003 ft./ft. The flow direction and gradient are generally consistent with historical patterns.

Precipitation Recharge

Table 4 summarizes monthly rainfall for the area during 2016 along with historical precipitation since 1994. From 1994 through 2006, the precipitation records are from the Indian Basin Gas Plant. For the years 2007 through 2016, the precipitation records are from a weather station located in Carlsbad, New Mexico. The site has historically received the highest amounts of precipitation between the months of June and October. The average annual rainfall measured over the past five years is approximately 14.90 inches, 3.36 inches above the long-term average for the area of approximately 11.54 inches per year. During 2016, data from the Carlsbad station indicate that the highest amount of precipitation was received in August (6.34 inches) with a total of 11.96 inches reported for the year.

GROUNDWATER SAMPLING AND ANALYSIS

As a condition of the discontinuance of active remediation at the site (Appendix D), the NMOCD required annual groundwater monitoring for BTEX, TDS and chloride for seven Shallow Zone and eight Lower Queen monitoring wells. Arcadis personnel conducted the 2016 annual groundwater sampling event at the site from May 23, 2016 through May 25, 2016. All samples were collected using low-flow purging and sampling techniques. Table 5 summarizes the BTEX, chloride and TDS analytical results for the May 2016 event. Summaries of historical BTEX, TDS and chloride analytical data are presented in Appendix B. The complete laboratory analytical reports for the annual groundwater sampling event in 2016 are presented in Appendix C.

The groundwater monitoring analytical results for both the Shallow Zone and Lower Queen are discussed in the following sections.

Shallow Zone Aquifer

BTEX Analysis

Groundwater samples were collected from four Shallow Zone monitoring wells. The samples were collected May, 2016. MW-126 was not sampled, because it contained condensate. Monitoring wells

MW-46 and MW-77 were not sampled because they did not contain a sufficient volume of water for sampling. The results of the BTEX laboratory analysis of the Shallow Zone groundwater samples may be summarized as follows:

- Benzene was not detected in monitoring wells MW-14, MW-45 and MW-106; and
- Benzene was detected in MW-49 (13.4 µg/L) at a concentration above the NMOCD regulatory limit of 10 µg/L.

Figure 5 illustrates the distribution of dissolved BTEX compounds in the Shallow Zone aquifer in May 2016. As indicated by the historical data in Appendix B, BTEX concentrations in this water-bearing zone have generally remained stable or declined over time.

Wet Chemistry Analysis

In addition to BTEX analysis, groundwater samples collected in May 2016 from the Shallow Zone monitoring wells were analyzed for wet chemistry (TDS and chloride). The results of the wet chemistry laboratory analysis of the Shallow Zone monitoring wells may be summarized as follows:

- TDS concentration in MW-106 (388 mg/L) was below the NMOCD standard and within historical ranges;
- TDS concentrations were detected above the NMOCD standard in MW-14, MW-45, and MW-49. The TDS concentration in MW-14 (1,400 mg/L) was within the historical TDS (ranging from 1,000 to 1,401 mg/L). The TDS concentration in MW-45 (5,400 mg/L) was within the historical range (2,540 to 5,990 mg/L). The TDS concentration in MW-49 (4,900 mg/L) was within the historical range (from 2,600 to 5,220 mg/L) recorded for this well;
- Chloride concentrations in MW-45 (238 mg/L) and MW-106 (2.9 mg/L) were below the NMOCD standard and within historic ranges; and
- Chloride concentration was detected above the NMOCD standard in MW-14 (266 mg/L) and MW-49 (379 mg/L).

A summary of the wet chemistry laboratory analysis is provided in Table 5. Copies of the analytical laboratory reports are included in Appendix C. Figure 5 depicts TDS and chloride concentrations in the wells sampled in May 2016.

Lower Queen Aquifer

BTEX Analysis

Groundwater samples were collected from five Lower Queen monitoring wells (MW-66, MW-70, MW-88, MW-111 and MW-127) in May 2016. Samples were not collected from MW-58, MW-81, and MW-113 because they contained condensate. BTEX concentrations were not detected in the four Lower Queen wells. Figure 6 illustrates the distribution of dissolved BTEX compounds in the Lower Queen in May 2016.

Wet Chemistry Analysis

In addition to BTEX analysis, groundwater samples were collected in May 2016 from the Lower Queen monitoring wells MW-66, MW-70, MW-88, MW-111 and MW-127 and analyzed for wet chemistry (TDS and chlorides). The results of the wet chemistry laboratory analysis of the Lower Queen monitoring wells are summarized as follows:

- TDS concentrations were below the NMOCD standard of 1,000 mg/L in all five samples collected from the Lower Queen. TDS concentrations ranged from 402 mg/L in MW-70 to 975 mg/L in MW-88; and
- Chloride concentrations were below the NMOCD standard of 250 mg/L in all five samples collected from the Lower Queen. The chloride concentrations ranged from 8.1 mg/L in MW-66 to 45.9 mg/L in MW-127.

A summary of the wet chemistry laboratory analysis is provided in Table 5. Copies of the analytical laboratory reports are included in Appendix C. Figure 6 depicts TDS and chlorides in the wells sampled in May 2016.

SUMMARY

Groundwater Monitoring

Results from the annual groundwater monitoring event conducted in May 2016 and the groundwater gauging event conducted in December 2016 indicated similar groundwater conditions presented in previous years. Wells containing measurable condensate in May and December 2016 were consistent with historical results. Analytical results for BTEX, chloride and TDS were similar to historical data for the sampled wells.

Groundwater Monitoring Plan

Groundwater monitoring will continue at the Indian Basin Gas Plant in accordance with the requirements outlined in the February 20, 2009 NMOCD letter (Appendix D) including annual groundwater monitoring for BTEX, TDS and chloride for the seven Shallow Zone and eight Lower Queen monitoring wells at the site, and semi-annual gauging of depth to groundwater and non-aqueous phase liquid thickness. In addition, an annual groundwater monitoring report will be submitted to the NMOCD. Based on the current program schedule, the annual groundwater monitoring event will be conducted in April and the semi-annual groundwater gauging event will be conducted in October. Annual reports will be prepared at the conclusion of each annual groundwater monitoring event.

The current purging and sampling techniques utilize low-flow procedures that were approved and implemented in 2003. A copy of the March 1998 USEPA low-flow procedures is included in Appendix E.

TABLES

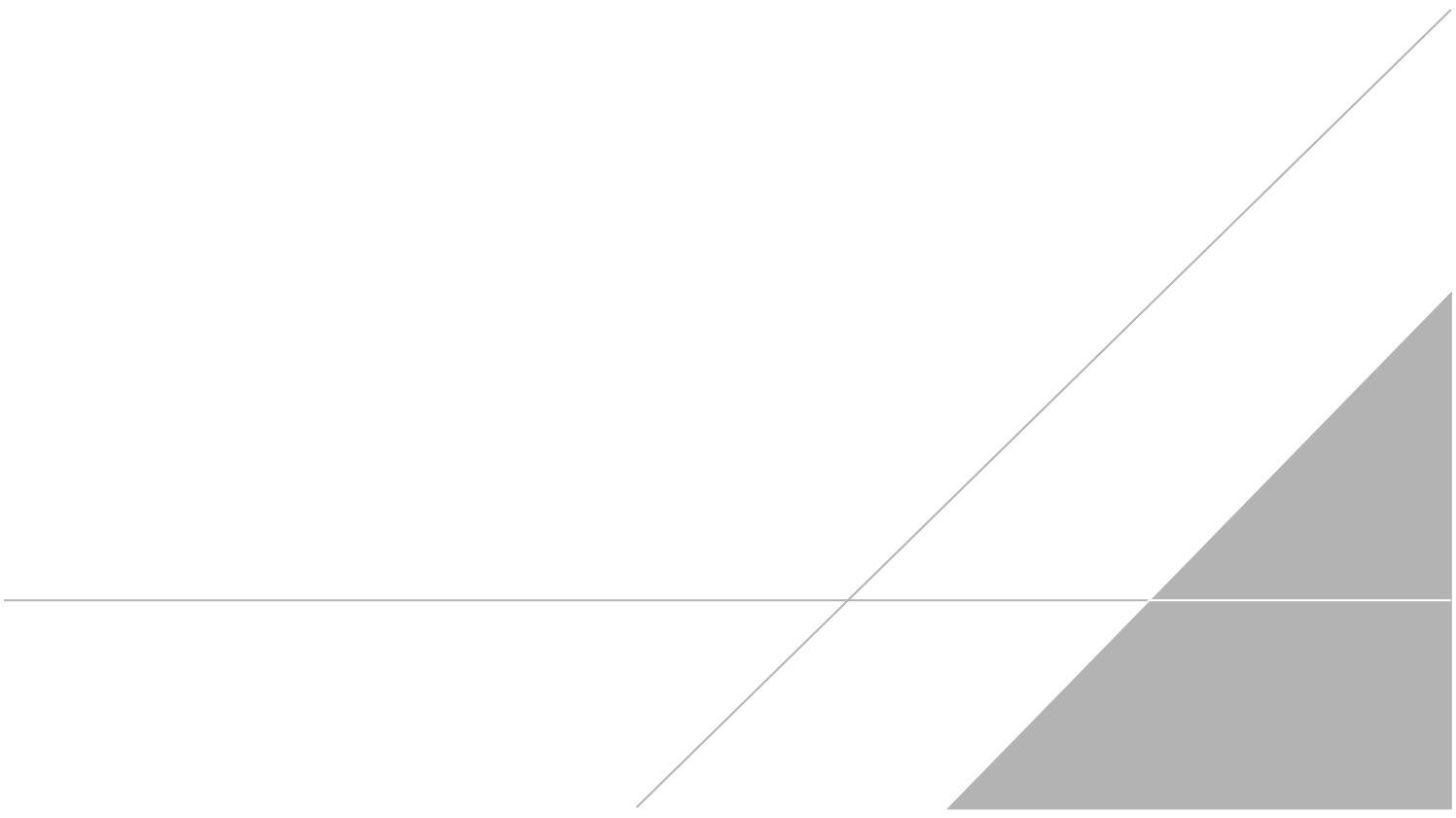


Table 1. Groundwater Monitoring Plan
OXY USA WTP Limited Partnership, Indian Basin Gas Plant
Eddy County, New Mexico.

Shallow Zone Sampling Schedule

Well ID	Spring		Fall
	Analytical Paramenters		
	Annual	Annual	Semi-Annual
MW-14	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-45	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-46	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-49	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-77	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-106	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-126	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging

Lower Queen Sampling Schedule

Well ID	Spring		Fall
	Analytical Paramenters		
	Annual	Annual	Semi-Annual
MW-58	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-66	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-70	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-81	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-88	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-111	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-113	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging
MW-127	Groundwater Gauging	BTEX, Chloride, TDS	Groundwater Gauging

Notes:
TDS Total Dissolved Solids
BTEX Benzene, Toluene, Ethylbenzene, and Total Xylenes

Table 2. Summary of Groundwater Gauging Results, May 2016

Semi-Annual Groundwater Gauging Event

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico.

Well Number	Well Diameter (in)	Northing	Easting	Total Depth From TOC (ft)	Top of Casing (ft amsl)	Top of Casing Stickup (ft agl)	DTW (feet)	DTP (feet)	PT (feet)	PT x 0.73 (feet)	ADJ DTW (feet)	WL Elev (ft amsl)	Comments
		NAD 27 Con hddd,mm',ss.s"											
Shallow Zone													
MW-14	4	32 27 44.3	104 34 00.9	24.13	3803.61	2.08	22.70	---	---	---	---	3780.91	
MW-45	2	32 28 01.1	104 34 08.7	26.24	3808.68	1.60	22.14	---	---	---	---	3786.54	
MW-46	4	32 27 56.7	104 34 05.8	18.81	3805.54	1.90	19.45	---	---	---	---	3786.09	
MW-49	2	32 27 57.6	104 33 59.9	26.69	3805.61	1.90	21.41	---	---	---	---	3784.20	
MW-77	7.875	32 27 27.3	104 33 25.0	83.37	3775.48	2.38	80.47	---	---	---	---	3695.01	
MW-106	4	32 26 57.0	104 32 26.4		3721.97	2.61	89.76	---	---	---	---	3632.21	
MW-126	4	32 27 48.2	104 33 49.9		3796.28	3.33	66.50	66.23	0.27	0.20	66.30	3729.98	
Lower Queen													
MW-58	7.875	32 28 04.5	104 33 28.5		3824.07	3.48	195.31	---	---	---	---	3628.76	Trace Condensate
MW-66	4	32 28 19.1	104 33 28.5	235.57	3828.98	2.60	207.28	---	---	---	---	3621.70	
MW-70	4	32 27 18.8	104 34 05.5	226.60	3822.57	2.71	200.21	---	---	---	---	3622.36	
MW-81	7.875	32 28 04.3	104 33 19.5		3817.03	3.98	194.25	---	---	---	---	3622.78	Trace Condensate
MW-88	4	32 28 25.3	104 32 55.6	177.97	3789.70	2.71	167.77	---	---	---	---	3621.93	
MW-111	4	32 28 15.9	104 34 06.1	227.31	3824.44	1.85	203.21	---	---	---	---	3621.23	
MW-113	7.875	32 27 16..3	104 33 32.1		3772.67	1.82	149.97	---	---	---	---	3622.70	Trace Condensate
MW-127	8.25	32 28 00.8	104 33 58.8	247.51	3825.17	2.63	203.56	---	---	---	---	3621.61	

Foot Notes:

TOC	Top of Casing	PT	Product Thickness
DTW	Depth to Water	ADJ DTW	Adjusted Depth to Water
DTP	Depth to Product	WL	Water Level

Table 3. Summary of Groundwater Gauging Results, December 2016

Semi-Annual Groundwater Gauging Event

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico.

Well Number	Well Diameter (in)	Northing (NAD 27 Con hddd,mm',ss.s")	Easting (NAD 27 Con hddd,mm',ss.s")	Total Depth From TOC (ft)	Top of Casing (ft amsl)	Top of Casing Stickup (ft agl)	DTW (feet)	DTP (feet)	PT (feet)	PT x 0.73 (feet)	ADJ DTW (feet)	WL Elev (ft amsl)	Comments
Shallow Zone													
MW-14	4	32 27 44.3	104 34 00.9		3803.61	2.08	21.85	---	---	---	---	3781.76	
MW-45	2	32 28 01.1	104 34 08.7		3808.68	1.60	21.06	---	---	---	---	3787.62	
MW-46	4	32 27 56.7	104 34 05.8		3805.54	1.90	19.81	---	---	---	---	3785.73	
MW-49	2	32 27 57.6	104 33 59.9		3805.61	1.90	21.62	---	---	---	---	3783.99	
MW-77	7.875	32 27 27.3	104 33 25.0		3775.48	2.38	80.50	---	---	---	---	3694.98	
MW-106	4	32 26 57.0	104 32 26.4		3721.97	2.61	89.93	---	---	---	---	3632.04	
MW-126	4	32 27 48.2	104 33 49.9		3796.28	3.33	62.04	61.35	0.69	0.50	61.54	3734.74	
Lower Queen													
MW-58	7.875	32 28 04.5	104 33 28.5		3824.07	3.48	130.48	---	---	---	---	3693.59	Trace Condensate
MW-66	4	32 28 19.1	104 33 28.5		3828.98	2.60	207.91	---	---	---	---	3621.07	
MW-70	4	32 27 18.8	104 34 05.5		3822.57	2.71	199.86	---	---	---	---	3622.71	
MW-81	7.875	32 28 04.3	104 33 19.5		3817.03	3.98	193.80	---	---	---	---	3623.23	Trace Condensate
MW-88	4	32 28 25.3	104 32 55.6		3789.70	2.71	167.37	---	---	---	---	3622.33	
MW-111	4	32 28 15.9	104 34 06.1		3824.44	1.85	202.95	---	---	---	---	3621.49	
MW-113	7.875	32 27 16..3	104 33 32.1		3772.67	1.82	149.41	---	---	---	---	3623.26	Trace Condensate
MW-127	8.25	32 28 00.8	104 33 58.8		3825.17	2.63	203.26	---	---	---	---	3621.91	

Foot Notes:

TOC	Top of Casing	PT	Product Thickness
DTW	Depth to Water	ADJ DTW	Adjusted Depth to Water
DTP	Depth to Product	WL	Water Level

Table 4. Summary of Historical Rainfall with Monthly Rainfall During 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant
Eddy County, New Mexico.

Historical Rainfall

Year	Rainfall (inches)
1994	9.31
1995	7.84
1996	16.60
1997	10.65
1998	3.95
1999	4.70
2000	9.75
2001	6.02
2002	12.70
2003	7.58
2004	26.96
2005	11.16
2006	17.49
2007	19.02*
2008	9.39*
2009	11.96*
2010	17.32*
2011	5.84*
2012	11.14*
2013	11.38*
2014	23.53*
2015	16.49*

Monthly Rainfall During 2016

Month	Rainfall (inches)
January	0.73
February	0.10
March	0.00
April	0.39
May	0.03
June	1.19
July	0.52
August	6.34
September	1.15
October	0.21
November	0.46
December	0.84
2016 Annual Total	11.96

Source: Rain gauge at Indian Basin Gas Plant

*Changed in 2007 to a station located in Carlsbad, NM

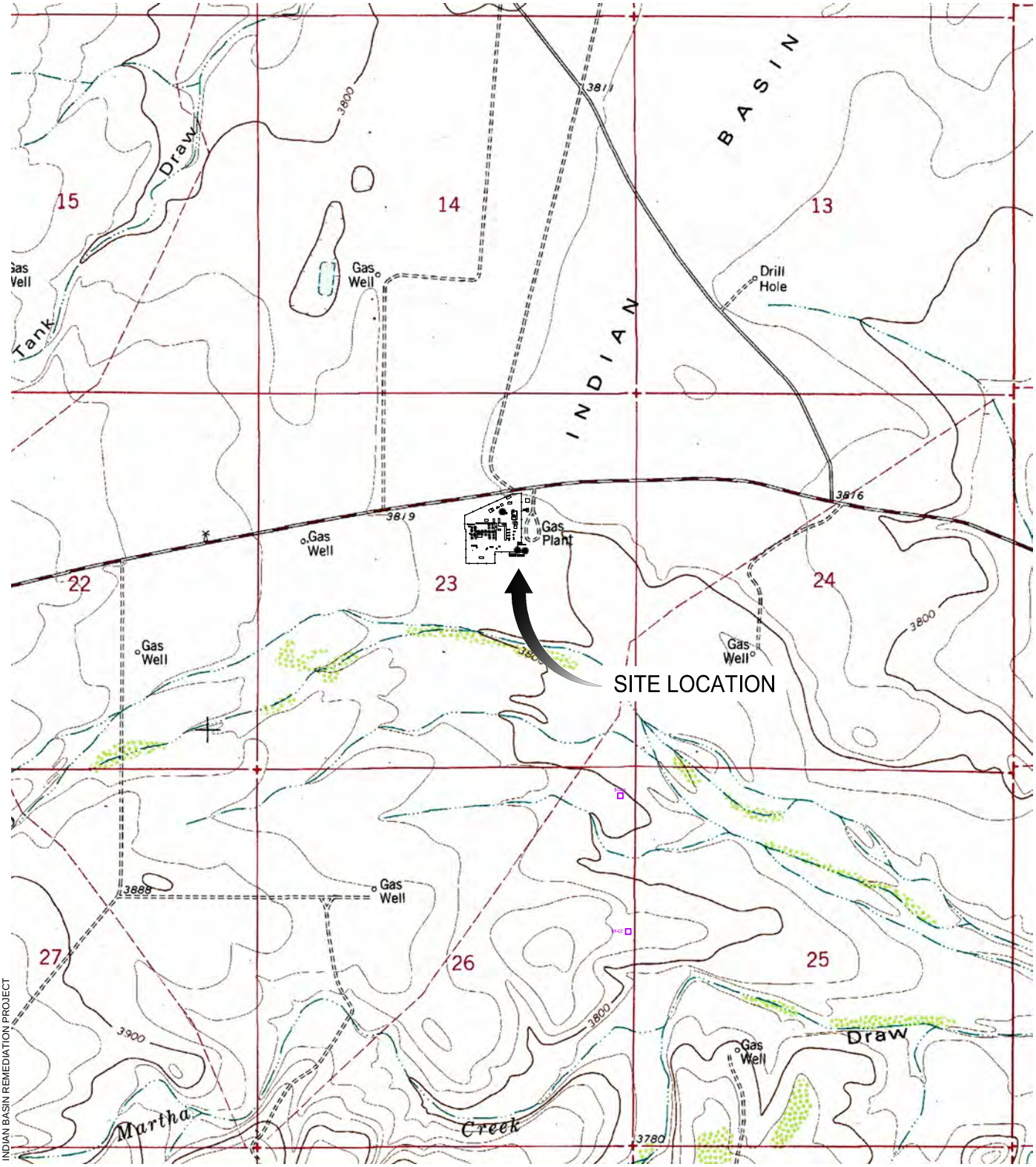
Table 5. Summary of Analytical Results, May 2016
Annual Groundwater Sampling Event
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico.

Well ID	Sample Date	Analytical Parameters					
		Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	TDS (mg/L)	Chloride (mg/L)
OCD Regulatory Limits		**10**	**750**	**750**	**620**	**1,000**	**250**
Shallow Zone Wells							
MW-14	4/30/2015	<1	<1	<1	<3	1,400	266
MW-45	4/30/2015	<1	<1	<1	<3	5,340	245
MW-46	4/30/2015	Not Sampled - not enough water to collect sample					
MW-49	4/30/2015	13.4	<1	<1	<3	4,900	379
MW-77	4/30/2015	Not Sampled - not enough water to collect sample					
MW-106	4/30/2015	<1	<1	<1	<3	388	2.9
MW-126	4/30/2015	Not Sampled - well contained condensate					
Lower Queen Wells							
MW-58	4/30/2015	Not Sampled - well contained condensate					
MW-66	4/29/2015	<1	<1	<1	<3	839	8.1
MW-70	4/29/2015	<1	<1	<1	<3	402	9.6
MW-81	4/29/2015	Not Sampled - well contained condensate					
MW-88	4/29/2015	<1	<1	<1	<3	975	27.4
MW-111	4/30/2015	<1	<1	<1	<3	677	43.3
MW-113	4/30/2015	Not Sampled - well contained condensate					
MW-127	4/30/2015	<1	<1	<1	<3	665	45.9

Notes:

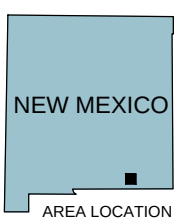
ug/L	Micrograms per liter
mg/L	Milligrams per liter
<5	Compound below the laboratory detection limit
6	Indicates result above the detection limit and below the NMOCD standard
16	Indicates result at/above the NMOCD standard

FIGURES



SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MINUTE TOPOGRAPHIC SERIES, MARTHA CREEK, NEW MEXICO QUADRANGLE, PUBLISHED 1978.

0 1000 2000
SCALE IN FEET



AREA LOCATION

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO

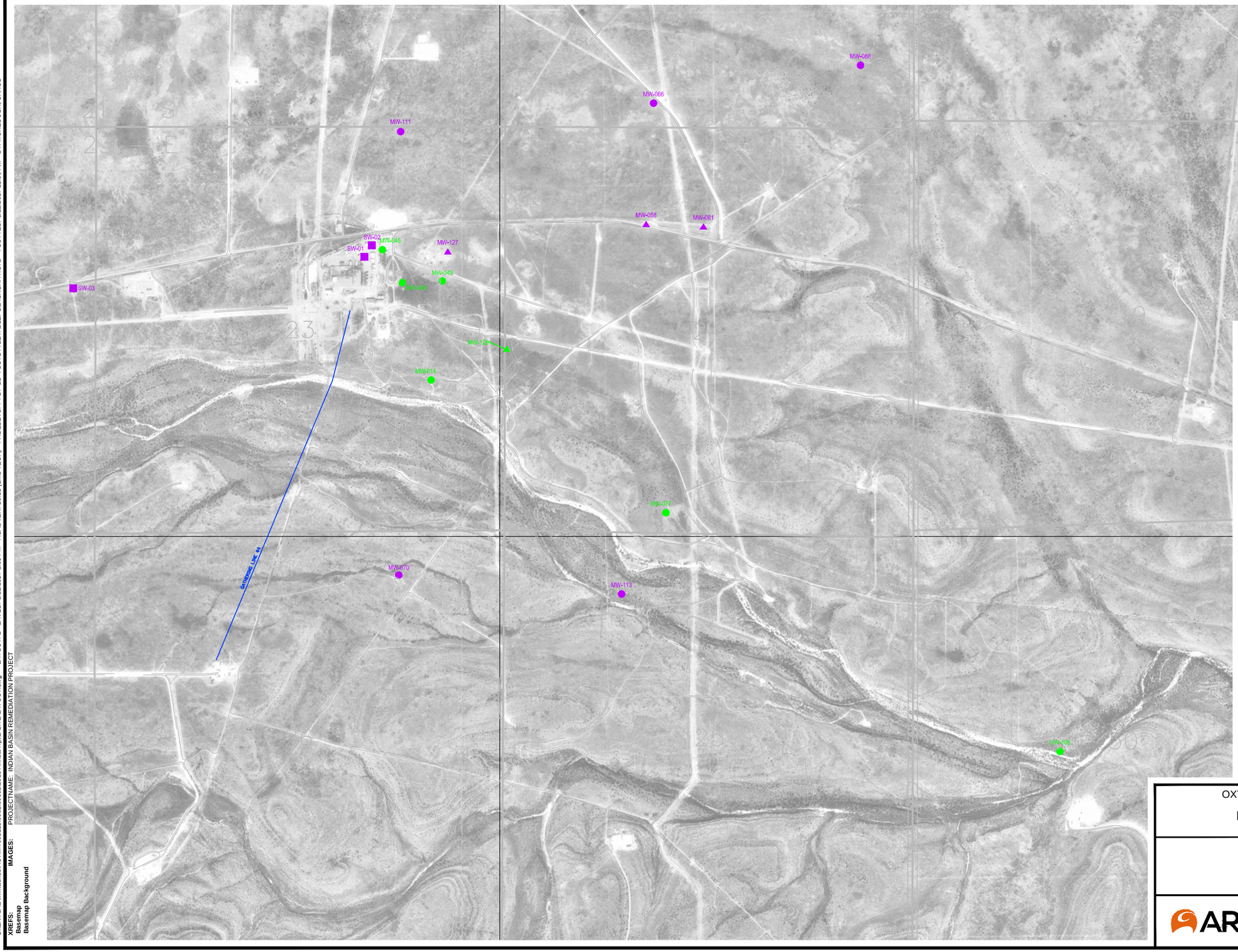
INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: Milwauke, WI GROUP: ENV DB: C. McKeough LD: PIC: M. Sanford PM: H. McConnell TM: A. Sides TR: LYR:ON=*;OFF=*REF* UN: 31-009-00471
G:\ENVCAD\Milwaukee\ACTIVITY\0011150002\00002\2016 Annual Rpt\1-SLM.dwg LAYOUT: 1 SAVED: 3/21/2017 1:15 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: PDF-PA PLOTSTYLETABLE: BLACKGRAY.CTB PLOTTED: 3/22/2017 10:58 AM BY: MCKEOUGH, CAROL
XREFS:
IMAGES: o3210485.jpg
PROJECTNAME: INDIAN BASIN REMEDIATION PROJECT



0 1200' 2400'

GRAPHIC SCALE

Explanation

- Monitoring Well
- Recovery Well
- Industrial Supply Well
- Phase I Infill Wells Installed During July, 1999
- Phase II Infill Wells Installed During August, 1999

Color Denotes Well Completion As Indicated Below:

Green **Completed In Shallow Zone**
Purple **Completed In Lower Queen**

Base map prepared from Martha Creek Quadrangle, New Mexico U.S. Geological Survey 7i Minute Topographic and Orthophotoquad Series, Published 1978, @ a scale of 1" = 2,000'.

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO

INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

SITE LAYOUT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: Milwauke, WI GROUP: ENV DB: C. McKeough LD: PIC: M. Sanford PM: H. McConnell TM: A. Sides TR: LYR:ON=*;OFF=*REF* UN: 31-009-00471
G:\ENVCAD\Milwaukee\ACTIVITY\0011\5\0002\0000\2016 Annual Rpt\2-SITE LAYOUT.dwg LAYOUT: 2 SAVED: 3/21/2017 1:05 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: PDF-LB PLOTSTYLETABLE: BLACKGRAY.CTB PLOTTED: 3/22/2017 11:00 AM BY: MCKEOUGH, CAROL

PROJECTNAME: INDIAN BASIN REMEDIATION PROJECT

XREFS:
IMAGES:
Basemap
Basemap Background

T – 21 – S
R – 24 – E

T – 21 – S
R – 23 – E

25

24

19

26

25

30

Rocky Arroyo

MW-045
3,786.54'

MW-049
3,784.20'

MW-046
3,786.09'

MW-128
3,729.98'

MW-014
3,780.91'

MW-077
3,695.01'

MW-106
3,632.21'

3,790.00'
3,780.00'
3,770.00'
3,760.00'
3,750.00'
3,740.00'
3,730.00'
3,720.00'
3,710.00'
3,700.00'
3,690.00'
3,680.00'
3,670.00'
3,660.00'
3,650.00'
3,640.00'

0 1200' 2400'

GRAPHIC SCALE

LEGEND

- MONITORING WELL
- PHASE II INFILL WELLS INSTALLED DURING AUGUST, 1999
- 3,788.78' GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- DRY INDICATES WELL WAS DRY AT TIME OF GAUGING
- 3,780.00' GROUNDWATER ELEVATION CONTOUR LINE, CONTOUR INTERVAL = 10 FEET
- GROUNDWATER FLOW DIRECTION

BASE MAP PREPARED FROM MARTHA CREEK QUADRANGLE, NEW MEXICO U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, PUBLISHED 1978, @ A SCALE OF 1" = 2,000'.

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO
INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

SHALLOW ZONE GROUNDWATER ELEVATION CONTOURS MAY 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: Milwauke, WI GROUP: ENV DB: C. McKeough LD: PIC: M. Sanford PM: H. McConnell TM: A. Sides TR: LYR:ON=*;OFF=*REF* UN: 31-009-00471
G:\ENVCAD\Milwaukee\ACTMT001115\0002\0002\2016 Annual Rpt\3-SHALLOW GW CONTOURS 0516.dwg LAYOUT: 3 SAVED: 3/23/2017 11:39 AM ACADVER: 19.1S (LMS TECH) PAGESETUP: PDF-LB PLOTSTYLETABLE: BLACKGRAY.CTB PLOTTED: 3/23/2017 11:40 AM BY: MCKEOUGH, CAROL

XREFS: IMAGES: PROJECTNAME: ----
Basemap 32104D51.sid
Basemap Background 32104D52.sid

T – 21 – S
R – 23 – E

T – 21 – S
R – 24 – E

MW-111
3,621.23'

MW-066
3,621.70'

MW-088
3,621.93'

MW-058
3,628.76'

MW-061
3,622.78'

MW-127
3,621.61'

SW-01
SW-02
SW-03

3,628.00'
3,626.00'
3,624.00'

3,622.00'

MW-070
3,622.36'

MW-113
3,622.70'

23
24
19
26
25
30

Rocky Arroyo

0 1200' 2400'
GRAPHIC SCALE

LEGEND

- MONITORING WELL
- RECOVERY WELL
- INDUSTRIAL SUPPLY WELL
- PHASE II INFILL WELLS INSTALLED DURING AUGUST, 1999
- 3,623.28' GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 3,622.00' GROUNDWATER ELEVATION CONTOUR LINE, CONTOUR INTERVAL = 2 FEET
- GROUNDWATER FLOW DIRECTION

BASE MAP PREPARED FROM MARTHA CREEK QUADRANGLE, NEW MEXICO U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, PUBLISHED 1978, @ A SCALE OF 1" = 2,000'.

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO
INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

LOWER QUEEN GROUNDWATER ELEVATION CONTOURS MAY 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4

21 – S
23 – E

	MW-45
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	5400 mg/L
Chloride	238 mg/L

	MW-49
Benzene	13.4 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	4900 mg/L
Chloride	379 mg/L

MW-126
NS - Well Contained Condensate

MW-46
Not Sampled - not enough water to collect sample

	MW-14
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	< 1µg/L
Xylenes	<3 µg/L
TDS	1400 mg/L
Chloride	266 mg/L

MW-77
Not Sampled - not enough water to collect sample

	MW-106
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	388 mg/L
Chloride	2.9 mg/L

MW-045 MW-049 MW-046 MW-126 MW-014 MW-077 MW-106

23 24 19 26 25 30

Rocky Arroyo

0 1200' 2400'
GRAPHIC SCALE

LEGEND

- ● MONITORING WELL
- ▲ RECOVERY WELL
- ■ INDUSTRIAL SUPPLY WELL
- ⍋ PHASE II INFILL WELLS INSTALLED DURING AUGUST, 1999

COC	MW-14
Benzene	0.81
Toluene	<1µg/L
Ethylbenzene	<1µg/L
Xylenes	<3µg/L
TDS	1430
Chloride	61.6

WELL ID
CONCENTRATION (ug/L or mg/L)
CONSTITUENT

OCD Cleanup Goals (Regular) or (Limits)

Benzene	10 µg/L
Toluene	750 µg/L
Ethylbenzene	750 µg/L
Total Xylenes	620 µg/L
Total Dissolved Solids	1,000 mg/L
Chlorides	250 mg/L

Notes:

OCD NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT, OIL CONSERVATION DIVISION

mg/L MILLIGRAMS PER LITER

µg/L MICROGRAMS PER LITER

NS NOT SAMPLED - WELL CONTAINED CONDENSATE

RED CONCENTRATIONS IN RED EXCEED THE OCD REGULATORY LIMITS

BASE MAP PREPARED FROM MARTHA CREEK QUADRANGLE, NEW MEXICO U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, PUBLISHED 1978, @ A SCALE OF 1" = 2,000'.

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO
INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

SHALLOW ZONE BTEX, CHLORIDE, AND TDS MAY 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

T – 21 – S
R – 23 – E

	MW-111
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	677 mg/L
Chloride	43.3 mg/L

MW-111

MW-58
NS- Well Contained Condensate

MW-066

	MW-66
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	839 mg/L
Chloride	8.1 mg/L

MW-088

	MW-88
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	975 mg/L
Chloride	27.4 mg/L

MW-058
MW-081
MW-127
SW-01
SW-02
SW-03

MW-81
NS- Well Contained Condensate

	MW-127
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	665 mg/L
Chloride	45.9 mg/L

23
24
19
26
25
30

Rocky Arroyo

MW-070

	MW-70
Benzene	<1 µg/L
Toluene	<1 µg/L
Ethylbenzene	<1 µg/L
Xylenes	<3 µg/L
TDS	402 mg/L
Chloride	9.6 mg/L

MW-113

MW-113
Well Contained Condensate

0 1200' 2400'
GRAPHIC SCALE

LEGEND

- ● MONITORING WELL
- ▲ RECOVERY WELL
- ■ INDUSTRIAL SUPPLY WELL
- ⍋ PHASE II INFILL WELLS INSTALLED DURING AUGUST, 1999

WELL ID

	MW-66
Benzene	<1µg/L
Toluene	<1µg/L
Ethylbenzene	<1µg/L
Xylenes	<3µg/L
TDS	793
Chloride	7.6

CONCENTRATION (ug/L or mg/L)
CONSTITUENT

OCD Cleanup Goals Regulatory Limits

Benzene	10 µg/L
Toluene	750 µg/L
Ethylbenzene	750 µg/L
Total Xylenes	620 µg/L
Total Dissolved Solids	1,000 mg/L
Chlorides	250 mg/L

Notes:

OCD	NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT, OIL CONSERVATION DIVISION
mg/L	MILLIGRAMS PER LITER
µg/L	MICROGRAMS PER LITER
NS	NOT SAMPLED - WELL CONTAINED CONDENSATE
RED	CONCENTRATIONS IN RED EXCEED THE OCD REGULATORY LIMITS

BASE MAP PREPARED FROM MARTHA CREEK QUADRANGLE, NEW MEXICO U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, PUBLISHED 1978, @ A SCALE OF 1" = 2,000'.

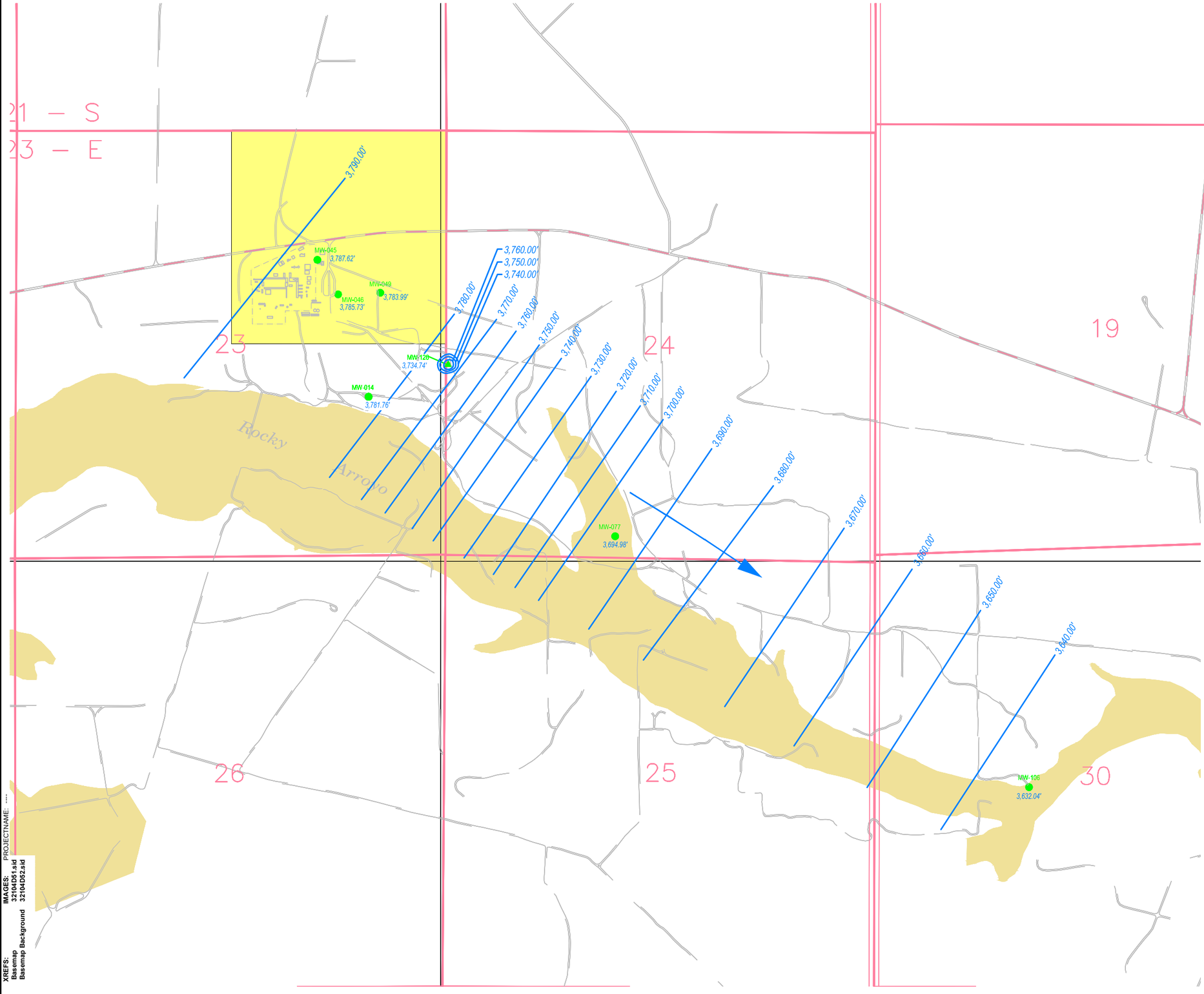
OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO

INDIAN BASIN GAS PLANT 2016 ANNUAL REPORT

LOWER QUEEN BTEX, CHLORIDE, AND TDS MAY 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6



LEGEND

- MONITORING WELL
- PHASE II INFILL WELLS INSTALLED DURING AUGUST, 1999
- 3,633.96' — GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- DRY — INDICATES WELL WAS DRY AT TIME OF GAUGING
- 3,780.00' — GROUNDWATER ELEVATION CONTOUR LINE, CONTOUR LINE = 10 FEET
- GROUNDWATER FLOW DIRECTION

BASE MAP PREPARED FROM MARTHA CREEK QUADRANGLE, NEW MEXICO U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, PUBLISHED 1978, @ A SCALE OF 1" = 2,000'.

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO
INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

SHALLOW ZONE GROUNDWATER ELEVATION CONTOURS DECEMBER 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

T – 21 – S
R – 23 – E

T – 21 – S
R – 24 – E

MW-111
3,621.49'

MW-066
3,621.07'

MW-088
3,622.33'

MW-058
3693.59'

MW-061
3,623.23'

MW-127
3,621.91'

SW-01
SW-02
SW-03

MW-070
3,622.71'

MW-113
3,623.26'

3,622.00'
3,623.00'
3,625.00'
3,645.00'
3,665.00'
3,685.00'

23
24
19
26
25
30

Rocky Arroyo

0 1200' 2400'
GRAPHIC SCALE

LEGEND

- MONITORING WELL
- RECOVERY WELL
- INDUSTRIAL SUPPLY WELL
- PHASE II INFILL WELLS INSTALLED DURING AUGUST, 1999
- 3,623.25' GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 3,624.00' GROUNDWATER ELEVATION CONTOUR LINE, CONTOUR INTERVAL = 1 FOOT
- GROUNDWATER FLOW DIRECTION

NOTE:
CONTOUR INTERVAL ADJUSTED TO 20 FOOT INTERVAL AT WELL MW-058.

BASE MAP PREPARED FROM MARTHA CREEK QUADRANGLE, NEW MEXICO U.S. GEOLOGICAL SURVEY 7½ MINUTE TOPOGRAPHIC SERIES, PUBLISHED 1978, @ A SCALE OF 1" = 2,000'.

OXY USA WTP LIMITED PARTNERSHIP
EDDY COUNTY, NEW MEXICO
INDIAN BASIN GAS PLANT
2016 ANNUAL REPORT

LOWER QUEEN GROUNDWATER ELEVATION CONTOURS DECEMBER 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8

APPENDIX A

Historic Groundwater Elevations

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
Shallow Zone Wells					
MW-14	**12/1/1991**	**3803.61**	**9.68**	**0**	**3793.93**
MW-14	10/1/1993	3803.61	22.55	0	3781.06
MW-14	1/1/1994	3803.61	22.78	0	3780.83
MW-14	1/27/1998	3803.61	22.36	0	3781.25
MW-14	6/16/1998	3803.61	22.88	0	3780.73
MW-14	4/19/1999	3803.61	23.74	0.24	3780.05
MW-14	1/5/2000	3803.61	22.22	0	3781.39
MW-14	4/26/2000	3803.61	22.74	0.03	3780.89
MW-14	9/27/2000	3803.61	23.40	0.09	3780.28
MW-14	4/16/2001	3803.61	22.15	0.01	3781.47
MW-14	10/29/2001	3803.61	21.98	0.08	3781.69
MW-14	4/15/2002	3803.61	22.81	0	3780.80
MW-14	10/14/2002	3803.61	18.17	0	3785.44
MW-14	04/15/2003	3803.61	21.87	0	3781.74
MW-14	10/14/2003	3803.61	22.19	0	3781.42
MW-14	4/5/2004	3803.61	23.45	0.01	3780.17
MW-14	10/5/2004	3803.61	18.36	0	3785.25
MW-14	4/19/2005	3803.61	21.55	0	3782.06
MW-14	10/24/2005	3803.61	20.69	0	3782.92
MW-14	4/18/2006	3803.61	22.69	0	3780.92
MW-14	10/11/2006	3803.61	19.20	0	3784.41
MW-14	4/16/2007	3803.61	22.1	0	3781.51
MW-14	10/22/2007	3803.61	21.15	0	3782.46
MW-14	5/27/2009	3803.61	23.75	0	3779.86
MW-14	6/21/2010	3803.61	24.04	0	3779.57
MW-14	12/28/2010	3803.61	22.31	0	3781.30
MW-14	6/30/2011	3803.61	24.00	0	3779.61
MW-14	12/15/2011	3803.61	23.85	0	3779.76
MW-14	6/27/2012	3803.61	22.73	0	3780.88
MW-14	12/1/2012	3803.61	23.40	0	3780.21
MW-14	6/1/2013	3803.61	22.73	0	3780.88
MW-14	12/12/2013	3803.61	20.82	0	3782.79
MW-14	6/25/2014	3803.61	20.96	0	3782.65
MW-14	12/16/2014	3803.61	20.42	0	3783.19
MW-14	4/28/2015	3803.61	21.91	0	3781.70
MW-14	10/13/2015	3803.61	19.89	0	3783.72
MW-14	5/24/2016	3803.61	22.70	0	3780.91
MW-14	12/6/2016	3803.61	21.85	0	3781.76
MW-45	**12/1/1991**	**3808.68**	**13.91**	**0**	**3794.77**
MW-45	7/1/1993	3808.68	21.49	0	3787.19
MW-45	10/1/1993	3808.68	21.47	0	3787.21
MW-45	1/1/1994	3808.68	21.54	0	3787.14
MW-45	4/1/1994	3808.68	22.64	0	3786.04
MW-45	7/1/1994	3808.68	21.85	0	3786.83
MW-45	10/1/1994	3808.68	21.52	0	3787.16
MW-45	1/1/1995	3808.68	21.78	0	3786.90
MW-45	4/1/1995	3808.68	22.13	0	3786.55
MW-45	7/1/1995	3808.68	22.13	0	3786.55
MW-45	1/5/2000	3808.68	18.88	0	3789.80
MW-45	4/26/2000	3808.68	19.19	0	3789.49
MW-45	9/27/2000	3808.68	19.19	0	3789.49
MW-45	4/16/2001	3808.68	18.39	0	3790.29
MW-45	10/29/2001	3808.68	18.53	0	3790.15
MW-45	4/15/2002	3808.68	18.75	0	3789.93

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-45	10/14/2002	3808.68	18.39	0	3790.29
MW-45	04/15/2003	3808.68	21.36	0	3787.32
MW-45	10/14/2003	3808.68	21.35	0	3787.33
MW-45	4/5/2004	3808.68	21.69	0	3786.99
MW-45	10/5/2004	3808.68	14.09	0	3794.59
MW-45	4/19/2005	3808.68	16.94	0	3791.74
MW-45	10/24/2005	3808.68	20.09	0	3788.59
MW-45	4/18/2006	3808.68	20.72	0	3787.96
MW-45	10/11/2006	3808.68	16.40	0	3792.28
MW-45	4/16/2007	3808.68	19.98	0	3788.70
MW-45	10/22/2007	3808.68	15.95	0	3792.73
MW-45	5/27/2009	3808.68	21.56	0	3787.12
MW-45	6/21/2010	3808.68	21.52	0	3787.16
MW-45	12/28/2010	3808.68	20.05	0	3788.63
MW-45	6/30/2011	3808.68	19.47	0	3789.21
MW-45	12/15/2011	3808.68	20.20	0	3788.48
MW-45	6/27/2012	3808.68	21.47	0	3787.21
MW-45	12/1/2012	3808.68	21.22	0	3787.46
MW-45	6/1/2013	3808.68	21.47	0	3787.21
MW-45	12/12/2013	3808.68	18.77	0	3789.91
MW-45	6/25/2014	3808.68	16.12	0	3792.56
MW-45	12/16/2014	3808.68	16.95	0	3791.73
MW-45	4/28/2015	3808.68	19.90	0	3788.78
MW-45	10/13/2015	3808.68	19.79	0	3788.89
MW-45	5/24/2016	3808.68	22.14	0	3786.54
MW-45	12/6/2016	3808.68	21.06	0	3787.62
MW-46	**10/1/1993**	**3805.54**	**19.87**	**0**	**3785.67**
MW-46	1/1/1994	3805.54	19.42	0	3786.12
MW-46	4/1/1994	3805.54	19.59	0	3785.95
MW-46	10/1/1994	3805.54	19.20	0	3786.34
MW-46	4/1/1995	3805.54	19.55	0	3785.99
MW-46	7/1/1995	3805.54	19.55	0	3785.99
MW-46	1/16/1996	3805.54	19.48	0	3786.06
MW-46	4/19/1996	3805.54	19.52	0	3786.02
MW-46	7/15/1996	3805.54	19.41	0	3786.13
MW-46	10/13/1996	3805.54	15.73	0	3789.81
MW-46	2/4/1997	3805.54	18.22	0	3787.32
MW-46	4/28/1997	3805.54	16.93	0	3788.61
MW-46	7/14/1997	3805.54	17.15	0	3788.39
MW-46	10/13/1997	3805.54	18.01	0	3787.53
MW-46	1/27/1998	3805.54	17.54	0	3788.00
MW-46	4/27/1998	3805.54	18.34	0	3787.20
MW-46	6/16/1998	3805.54	18.69	0	3786.85
MW-46	10/10/1998	3805.54	17.82	0	3787.72
MW-46	1/27/1999	3805.54	16.91	0	3788.63
MW-46	4/19/1999	3805.54	17.44	0	3788.10
MW-46	1/5/2000	3805.54	16.76	0	3788.78
MW-46	4/26/2000	3805.54	17.17	0	3788.37
MW-46	9/27/2000	3805.54	17.42	0	3788.12
MW-46	4/16/2001	3805.54	16.68	0	3788.86
MW-46	10/29/2001	3805.54	16.79	0	3788.75
MW-46	4/15/2002	3805.54	17.49	0	3788.05
MW-46	10/14/2002	3805.54	17.83	0	3787.71
MW-46	04/15/2003	3805.54	19.38	0	3786.16
MW-46	10/14/2003	3805.54	19.62	0	3785.92

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-46	4/5/2004	3805.54	19.63	0	3785.91
MW-46	10/5/2004	3805.54	13.05	0	3792.49
MW-46	4/19/2005	3805.54	16.27	0	3789.27
MW-46	10/24/2005	3805.54	19.38	0	3786.16
MW-46	4/18/2006	3805.54	19.35	0	3786.19
MW-46	10/11/2006	3805.54	15.74	0	3789.80
MW-46	4/16/2007	3805.54	19.34	0	3786.20
MW-46	10/22/2007	3805.54	15.67	0	3789.87
MW-46	5/27/2009	3805.54	19.38	0	3786.16
MW-46	6/21/2010	3805.54	19.42	0	3786.12
MW-46	12/28/2010	3805.54	18.27	0	3787.27
MW-46	6/30/2011	3805.54	19.54	0	3786.00
MW-46	12/15/2011	3805.54	18.35	0	3787.19
MW-46	6/27/2012	3805.54	19.33	0	3786.21
MW-46	12/1/2012	3805.54	19.33	0	3786.21
MW-46	6/1/2013	3805.54	19.33	0	3786.21
MW-46	12/12/2013	3805.54	16.88	0	3788.66
MW-46	6/25/2014	3805.54	15.67	0	3789.87
MW-46	12/16/2014	3805.54	16.31	0	3789.23
MW-46	4/28/2015	3805.54	18.54	0	3787.00
MW-46	10/13/2015	3805.54	17.98	0	3787.56
MW-46	5/24/2016	3805.54	19.45	0	3786.09
MW-46	12/6/2016	3805.54	19.81	0	3785.73
MW-49	**12/1/1991**	**3805.61**	**16.60**	**0**	**3789.01**
MW-49	7/1/1993	3805.61	21.98	0	3783.63
MW-49	10/1/1993	3805.61	21.93	0	3783.68
MW-49	1/1/1994	3805.61	22.27	0	3783.34
MW-49	4/1/1994	3805.61	22.64	0	3782.97
MW-49	7/1/1994	3805.61	22.73	0	3782.88
MW-49	10/1/1994	3805.61	22.30	0	3783.31
MW-49	1/1/1995	3805.61	22.56	0	3783.05
MW-49	4/1/1995	3805.61	22.94	0	3782.67
MW-49	7/1/1995	3805.61	22.94	0	3782.67
MW-49	10/1/1995	3805.61	22.68	0	3782.93
MW-49	1/16/1996	3805.61	22.55	0	3783.06
MW-49	4/19/1996	3805.61	22.59	0	3783.02
MW-49	7/15/1996	3805.61	22.76	0	3782.85
MW-49	10/13/1996	3805.61	19.54	0	3786.07
MW-49	2/3/1997	3805.61	20.66	0	3784.95
MW-49	3/18/1997	3805.61	20.99	0	3784.62
MW-49	4/28/1997	3805.61	20.70	0	3784.91
MW-49	7/14/1997	3805.61	20.31	0	3785.30
MW-49	10/13/1997	3805.61	21.01	0	3784.60
MW-49	1/27/1998	3805.61	21.08	0	3784.53
MW-49	4/27/1998	3805.61	21.34	0	3784.27
MW-49	6/16/1998	3805.61	21.35	0	3784.26
MW-49	10/9/1998	3805.61	22.52	0	3783.09
MW-49	1/27/1999	3805.61	20.50	0	3785.11
MW-49	4/19/1999	3805.61	20.81	0	3784.80
MW-49	1/5/2000	3805.61	20.07	0	3785.54
MW-49	4/26/2000	3805.61	20.30	0	3785.31
MW-49	9/27/2000	3805.61	20.52	0	3785.09
MW-49	4/16/2001	3805.61	20.03	0	3785.58
MW-49	10/29/2001	3805.61	19.96	0	3785.65
MW-49	4/15/2002	3805.61	19.76	0	3785.85

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-49	10/14/2002	3805.61	20.56	0	3785.05
MW-49	04/15/2003	3805.61	22.08	0	3783.53
MW-49	10/14/2003	3805.61	22.52	0	3783.09
MW-49	4/5/2004	3805.61	22.79	0	3782.82
MW-49	10/5/2004	3805.61	18.33	0	3787.28
MW-49	4/19/2005	3805.61	18.23	0	3787.38
MW-49	10/24/2005	3805.61	21.01	0	3784.60
MW-49	4/18/2006	3805.61	22.29	0	3783.32
MW-49	10/11/2006	3805.61	20.49	0	3785.12
MW-49	4/16/2007	3805.61	21.43	0	3784.18
MW-49	10/22/2007	3805.61	18.81	0	3786.80
MW-49	5/27/2009	3805.61	22.35	0	3783.26
MW-49	6/21/2010	3805.61	22.33	0	3783.28
MW-49	12/28/2010	3805.61	20.92	0	3784.69
MW-49	6/30/2011	3805.61	21.95	0	3783.66
MW-49	12/15/2011	3805.61	21.11	0	3784.50
MW-49	6/27/2012	3805.61	22.40	0	3783.21
MW-49	12/1/2012	3805.61	22.12	0	3783.49
MW-49	6/1/2013	3805.61	22.40	0	3783.21
MW-49	12/12/2013	3805.61	20.05	0	3785.56
MW-49	6/25/2014	3805.61	19.42	0	3786.19
MW-49	12/16/2014	3805.61	17.49	0	3788.12
MW-49	4/28/2015	3805.61	20.21	0	3785.40
MW-49	10/13/2015	3805.61	20.95	0	3784.66
MW-49	5/24/2016	3805.61	21.41	0	3784.20
MW-49	12/6/2016	3805.61	21.62	0	3783.99
MW-77	**1/1/1995**	**3775.48**	**80.03**	**0**	**3695.45**
MW-77	4/1/1995	3775.48	80.04	0	3695.44
MW-77	7/1/1995	3775.48	80.04	0	3695.44
MW-77	10/1/1995	3775.48	79.70	0	3695.78
MW-77	1/16/1996	3775.48	79.84	0	3695.64
MW-77	4/17/1996	3775.48	78.95	0	3696.53
MW-77	7/16/1996	3775.48	79.42	0	3696.06
MW-77	10/14/1996	3775.48	80.02	0	3695.46
MW-77	2/4/1997	3775.48	D	0	--
MW-77	4/29/1997	3775.48	80.35	0	3695.13
MW-77	7/15/1997	3775.48	80.31	0	3695.17
MW-77	10/14/1997	3775.48	78.92	0	3696.56
MW-77	1/28/1998	3775.48	77.00	0	3698.48
MW-77	4/27/1998	3775.48	78.48	0	3697.00
MW-77	6/16/1998	3775.48	75.30	0	3700.18
MW-77	10/10/1998	3775.48	79.84	0	3695.64
MW-77	1/27/1999	3775.48	76.41	0	3699.07
MW-77	4/19/1999	3775.48	77.50	0	3697.98
MW-77	1/5/2000	3775.48	79.36	0	3696.12
MW-77	4/26/2000	3775.48	78.57	0	3696.91
MW-77	9/27/2000	3775.48	78.86	0	3696.62
MW-77	4/16/2001	3775.48	79.91	0	3695.57
MW-77	10/29/2001	3775.48	79.72	0	3695.76
MW-77	4/15/2002	3775.48	80.42	0	3695.06
MW-77*	10/14/2002	3775.48	57.95	0	3717.53
MW-77	04/15/2003	3775.48	69.95	0	3705.53
MW-77	10/14/2003	3775.48	73.98	0	3701.50
MW-77	4/5/2004	3775.48	79.88	0	3695.60
MW-77	10/5/2004	3775.48	63.37	0	3712.11

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-77	4/19/2005	3775.48	67.06	0	3708.42
MW-77	10/24/2005	3775.48	63.89	0	3711.59
MW-77	4/18/2006	3775.48	80.43	0	3695.05
MW-77	10/11/2006	3775.48	78.89	0	3696.59
MW-77	4/17/2007	3775.48	76.32	0	3699.16
MW-77	10/22/2007	3775.48	73.36	0	3702.12
MW-77	5/27/2009	3775.48	D	0	--
MW-77	6/21/2010	3775.48	80.57	0	3694.91
MW-77	12/28/2010	3775.48	80.37	0	3695.11
MW-77	6/30/2011	3775.48	80.47	0	3695.01
MW-77	12/15/2011	3775.48	80.55	0	3694.93
MW-77	6/27/2012	3775.48	81.00	0	3694.48
MW-77	12/1/2012	3775.48	80.51	0	3694.97
MW-77	6/1/2013	3775.48	81.00	0	3694.48
MW-77	12/12/2013	3775.48	78.76	0	3696.72
MW-77	6/25/2014	3775.48	71.32	0	3704.16
MW-77	12/16/2014	3775.48	80.45	0	3695.03
MW-77	4/28/2015	3775.48	80.61	0	3694.87
MW-77	10/13/2015	3775.48	80.63	0	3694.85
MW-77	5/24/2016	3775.48	80.47	0	3695.01
MW-77	12/6/2016	3775.48	80.50	0	3694.98
MW-106	**2/4/1997**	**3721.97**	**87.97**	**0**	**3634.00**
MW-106	4/28/1997	3721.97	87.59	0	3634.38
MW-106	7/15/1997	3721.97	87.63	0	3634.34
MW-106	10/13/1997	3721.97	88.75	0	3633.22
MW-106	1/28/1998	3721.97	88.97	0	3633.00
MW-106	4/27/1998	3721.97	89.36	0	3632.61
MW-106	6/15/1998	3721.97	89.63	0	3632.34
MW-106	10/10/1998	3721.97	89.61	0	3632.36
MW-106	1/27/1999	3721.97	86.55	0	3635.42
MW-106	4/19/1999	3721.97	89.58	0	3632.39
MW-106	1/5/2000	3721.97	89.05	0	3632.92
MW-106	4/26/2000	3721.97	89.31	0	3632.66
MW-106	9/27/2000	3721.97	87.98	0	3633.99
MW-106	4/16/2001	3721.97	88.81	0	3633.16
MW-106	10/29/2001	3721.97	89.05	0	3632.92
MW-106	4/15/2002	3721.97	89.05	0	3632.92
MW-106	10/14/2002	3721.97	87.40	0	3634.57
MW-106	04/15/2003	3721.97	88.91	0	3633.06
MW-106	10/14/2003	3721.97	89.94	0	3632.03
MW-106	4/5/2004	3721.97	89.34	0	3632.63
MW-106	10/5/2004	3721.97	75.78	0	3646.19
MW-106	4/19/2005	3721.97	88.54	0	3633.43
MW-106	10/24/2005	3721.97	88.47	0	3633.50
MW-106	4/18/2006	3721.97	89.71	0	3632.26
MW-106	10/11/2006	3721.97	87.09	0	3634.88
MW-106	4/17/2007	3721.97	89.4	0	3632.57
MW-106	10/22/2007	3721.97	88.64	0	3633.33
MW-106	5/27/2009	3721.97	D	--	--
MW-106	6/21/2010	3721.97	90.06	0	3631.91
MW-106	12/28/2010	3721.97	89.47	0	3632.50
MW-106	6/30/2011	3721.97	89.93	0	3632.04
MW-106	12/15/2011	3721.97	90.02	0	3631.95
MW-106	6/27/2012	3721.97	87.75	0	3634.22
MW-106	12/1/2012	3721.97	89.71	0	3632.26

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-106	6/1/2013	3721.97	87.50	0	3634.47
MW-106	12/12/2013	3721.97	88.62	0	3633.35
MW-106	6/25/2014	3721.97	88.27	0	3633.70
MW-106	12/16/2014	3721.97	88.44	0	3633.53
MW-106	4/28/2015	3721.97	89.03	0	3632.94
MW-106	10/13/2015	3721.97	88.01	0	3633.96
MW-106	5/24/2016	3721.97	89.76	0	3632.21
MW-106	12/6/2016	3721.97	89.93	0	3632.04
MW-126	**1/5/2000**	**3795.58**	**53.08**	**0**	**3742.50**
MW-126	4/26/2000	3795.58	54.03	0	3741.55
MW-126	9/27/2000	3795.58	60.29	0	3735.29
MW-126	4/16/2001	3795.58	54.25	0.52	3741.71
MW-126	10/29/2001	3795.58	57.82	2.1	3739.29
MW-126	4/15/2002	3795.58	56.95	2.23	3740.26
MW-126	10/14/2002	3795.58	54.03	2.57	3743.43
MW-126	04/15/2003	3796.28	63.65	3.96	3735.52
MW-126	10/14/2003	3796.28	68.01	0	3728.27
MW-126	4/5/2004	3796.28	70.04	0	3726.24
MW-126	10/5/2004	3796.28	48.01	0.01	3748.28
MW-126	4/19/2005	3796.28	50.63	0.25	3745.83
MW-126	10/24/2005	3796.28	51.78	0	3744.50
MW-126	4/18/2006	3796.28	66.79	0	3729.49
MW-126	10/11/2006	3796.28	51.76	0.08	3744.58
MW-126	4/17/2007	3796.28	62.92	0.6	3732.92
MW-126	10/22/2007	3796.28	56.30	0	3739.98
MW-126	5/27/2009	3796.28	69.95	0.05	3726.37
MW-126	6/21/2010	3796.28	70.40	0.23	3726.05
MW-126	12/28/2010	3796.28	66.12	0.56	3730.57
MW-126	6/30/2011	3796.28	69.55	0.45	3727.06
MW-126	12/15/2011	3796.28	70.21	0.22	3726.23
MW-126	6/27/2012	3796.28	67.72	0.29	3728.77
MW-126	12/1/2012	3796.28	71.19	0	3725.10
MW-126	6/1/2013	3796.28	72.00	0	3724.28
MW-126	12/12/2013	3796.28	53.52	0.11	3742.84
MW-126	6/25/2014	3796.28	63.63	0.08	3732.71
MW-126	12/16/2014	3796.28	44.65	0.19	3751.77
MW-126	4/28/2015	3796.28	52.46	0.21	3743.97
MW-126	10/13/2015	3796.28	65.03	0.27	3731.45
MW-126	5/24/2016	3796.28	66.50	0.27	3729.98
MW-126	12/6/2016	3796.28	62.04	0.69	3734.74
Lower Queen Wells					
MW-58	**7/16/1991**	**3824.07**	**197.91**	**0**	**3626.16**
MW-58	8/21/1991	3824.07	193.76	0	3630.31
MW-58	9/18/1991	3824.07	193.26	0	3630.81
MW-58	10/22/1991	3824.07	194.45	0	3629.62
MW-58	11/15/1991	3824.07	194.77	0	3629.30
MW-58	1/16/1996	3824.07	D	--	--
MW-58	7/16/1996	3824.07	D	--	--
MW-58	10/14/1996	3824.07	196.01	0.01	3628.06
MW-58	2/4/1997	3824.07	203.00	0	3621.07
MW-58	4/28/1997	3824.07	204.14	0	3619.93
MW-58	7/15/1997	3824.07	197.66	0	3626.41
MW-58	10/1/1997	3824.07	199.20	0.3	3625.08
MW-58	10/9/1997	3824.07	199.52	0.67	3625.03

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-58	10/14/1997	3824.07	196.10	0	3627.97
MW-58	1/28/1998	3824.07	198.55	0	3625.52
MW-58	5/28/1998	3824.07	205.14	0	3618.93
MW-58	10/11/1998	3824.07	200.48	0	3623.59
MW-58	1/27/1999	3824.07	D	--	--
MW-58	4/19/1999	3824.07	217.17	0	3606.90
MW-58	1/5/2000	3824.07	210.57	0	3613.50
MW-58	4/26/2000	3824.07	223.51	0	3600.56
MW-58	9/27/2000	3824.07	220.18	0	3603.89
MW-58	4/16/2001	3824.07	114.83	0	3709.24
MW-58	10/29/2001	3824.07	177.31	0	3644.41
MW-58	4/15/2002	3824.07	201.92	0	3622.15
MW-58	10/14/2002	3824.07	199.69	0	3624.38
MW-58	2/13/2003	3824.07	201.08	0	3622.99
MW-58	3/10/2003	3824.07	202.20	0	3621.87
MW-58	04/15/2003	3824.07	201.17	0	3622.90
MW-58	5/15/2003	3824.07	201.82	0	3622.25
MW-58	6/24/2003	3824.07	201.71	0	3622.36
MW-58	7/15/2003	3824.07	202.89	0	3621.18
MW-58	8/8/2003	3824.07	201.98	0	3622.09
MW-58	9/12/2005	3824.07	202.20	0	3621.87
MW-58	10/14/2003	3824.07	202.19	0	3621.88
MW-58	11/7/2003	3824.07	202.29	0	3621.78
MW-58	12/4/2003	3824.07	202.26	0	3621.81
MW-58	1/8/2004	3824.07	202.38	0.1	3621.76
MW-58	2/12/2004	3824.07	202.47	0	3621.60
MW-58	3/25/2004	3824.07	202.49	0	3621.58
MW-58	4/5/2004	3824.07	202.32	0	3621.75
MW-58	5/27/2004	3824.07	201.37	0.01	3622.71
MW-58	6/17/2004	3824.07	202.00	0	3622.07
MW-58	7/15/2004	3824.07	202.08	0	3621.99
MW-58	8/19/2004	3824.07	202.98	0.06	3621.13
MW-58	9/9/2004	3824.07	201.74	0	3622.33
MW-58	10/5/2004	3824.07	198.82	0	3625.25
MW-58	11/19/2004	3824.07	199.30	0.28	3624.97
MW-58	12/7/2004	3824.07	202.14		3621.93
MW-58	1/11/2005	3824.07	200.70	0.58	3623.79
MW-58	2/8/2005	3824.07	200.56	0	3623.51
MW-58	3/8/2005	3824.07	200.87	0	3623.20
MW-58	4/19/2005	3824.07	207.19	0	3616.88
MW-58	5/9/2005	3824.07	207.19	0	3616.88
MW-58	6/21/2005	3824.07	200.04	0	3624.03
MW-58	7/19/2005	3824.07	199.94	0	3624.13
MW-58	8/8/2005	3824.07	200.03	0	3624.04
MW-58	9/20/2005	3824.07	199.02	0	3625.05
MW-58	10/24/2005	3824.07	199.84	0.46	3624.57
MW-58	4/18/2006	3824.07	200.05	0	3624.02
MW-58	10/11/2006	3824.07	199.04	0.2	3625.18
MW-58	4/16/2007	3824.07	200.49	0.52	3623.20
MW-58	10/22/2007	3824.07	199.65	0	3624.42
MW-58	5/27/2009	3824.07	200.73	5.26	3627.18
MW-58	6/21/2010	3824.07	200.74	0.11	3623.41
MW-58	12/28/2010	3824.07	200.71	0.40	3623.65
MW-58	6/30/2011	3824.07	198.01	2.29	3627.73
MW-58	12/15/2011	3824.07	201.30	0.13	3622.86
MW-58	6/27/2012	3824.07	197.05	2.35	3628.74

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-58	12/1/2012	3824.07	201.80	0.63	3622.73
MW-58	6/1/2013	3824.07	202.38	0.53	3622.08
MW-58	12/12/2013	3824.07	201.15	0.31	3623.15
MW-58	6/25/2014	3824.07	201.56	0	3622.51
MW-58	12/16/2014	3824.07	199.18	0	3624.89
MW-58	4/28/2015	3824.07	199.71	0.02	3624.37
MW-58*	10/13/2015	3824.07	160.00	0	3664.07
MW-58*	5/24/2016	3824.07	195.31	0.001	3628.76
MW-58*	12/6/2016	3824.07	130.48	0.001	3693.59
MW-66	**8/21/1991**	**3828.98**	**196.77**	**0**	**3632.21**
MW-66	9/18/1991	3828.98	198.73	0	3630.25
MW-66	10/22/1991	3828.98	199.70	0	3629.28
MW-66	11/15/1991	3828.98	199.88	0	3629.10
MW-66	3/1/1992	3828.98	200.37	0	3628.61
MW-66	4/1/1992	3828.98	200.25	0	3628.73
MW-66	5/1/1992	3828.98	195.25	0	3633.73
MW-66	6/1/1992	3828.98	196.08	0	3632.90
MW-66	7/1/1992	3828.98	197.35	0	3631.63
MW-66	8/1/1992	3828.98	197.77	0	3631.21
MW-66	9/1/1992	3828.98	198.17	0	3630.81
MW-66	10/1/1992	3828.98	198.40	0	3630.58
MW-66	11/1/1992	3828.98	198.76	0	3630.22
MW-66	12/1/1992	3828.98	198.98	0	3630.00
MW-66	1/1/1993	3828.98	199.10	0	3629.88
MW-66	2/1/1993	3828.98	199.23	0	3629.75
MW-66	3/1/1993	3828.98	199.49	0	3629.49
MW-66	4/1/1993	3828.98	199.38	0	3629.60
MW-66	5/1/1993	3828.98	199.63	0	3629.35
MW-66	6/1/1993	3828.98	199.59	0	3629.39
MW-66	7/1/1993	3828.98	199.82	0	3629.16
MW-66	8/1/1993	3828.98	199.78	0	3629.20
MW-66	9/1/1993	3828.98	200.01	0	3628.97
MW-66	10/1/1993	3828.98	200.09	0	3628.89
MW-66	11/1/1993	3828.98	200.35	0	3628.63
MW-66	12/1/1993	3828.98	200.42	0	3628.56
MW-66	1/1/1994	3828.98	200.33	0	3628.65
MW-66	2/1/1994	3828.98	201.39	0	3627.59
MW-66	3/1/1994	3828.98	201.44	0	3627.54
MW-66	4/1/1994	3828.98	201.36	0	3627.62
MW-66	5/1/1994	3828.98	201.26	0	3627.72
MW-66	7/1/1994	3828.98	200.91	0	3628.07
MW-66	8/1/1994	3828.98	199.86	0	3629.12
MW-66	9/1/1994	3828.98	200.66	0	3628.32
MW-66	10/1/1994	3828.98	200.83	0	3628.15
MW-66	12/1/1994	3828.98	201.96	0	3627.02
MW-66	1/1/1995	3828.98	201.04	0	3627.94
MW-66	4/1/1995	3828.98	202.26	0	3626.72
MW-66	7/1/1995	3828.98	201.59	0	3627.39
MW-66	10/1/1995	3828.98	201.62	0	3627.36
MW-66	1/16/1996	3828.98	200.89	0	3628.09
MW-66	4/17/1996	3828.98	202.29	0	3626.69
MW-66	7/16/1996	3828.98	202.45	0	3626.53
MW-66	10/13/1996	3828.98	200.80	0	3628.18
MW-66	2/4/1997	3828.98	202.60	0	3626.38
MW-66	4/28/1997	3828.98	202.84	0	3626.14

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-66	7/14/1997	3828.98	202.72	0	3626.26
MW-66	9/30/1997	3828.98	204.00	0	3624.98
MW-66	10/9/1997	3828.98	204.20	0	3624.78
MW-66	10/13/1997	3828.98	203.77	0	3625.21
MW-66	1/27/1998	3828.98	203.79	0	3625.19
MW-66	4/27/1998	3828.98	204.09	0	3624.89
MW-66	5/28/1998	3828.98	204.18	0	3624.80
MW-66	6/15/1998	3828.98	204.37	0	3624.61
MW-66	10/10/1998	3828.98	204.86	0	3624.12
MW-66	1/27/1999	3828.98	205.05	0	3623.93
MW-66	4/19/1999	3828.98	205.10	0	3623.88
MW-66	1/5/1999	3828.98	205.13	0	3623.85
MW-66	4/26/2000	3828.98	205.41	0	3623.57
MW-66	9/27/2000	3828.98	205.78	0	3623.20
MW-66	4/16/2001	3828.98	205.59	0	3623.39
MW-66	10/29/2001	3828.98	206.04	0	3622.94
MW-66	4/15/2002	3828.98	205.98	0	3623.00
MW-66	10/14/2002	3828.98	199.87	0	3629.11
MW-66	04/15/2003	3828.98	205.39	0	3623.59
MW-66	10/14/2003	3828.98	206.41	0	3622.57
MW-66	4/5/2004	3828.98	206.65	0	3622.33
MW-66	10/5/2004	3828.98	203.05	0	3625.93
MW-66	4/19/2005	3828.98	205.48	0	3623.50
MW-66	10/24/2005	3828.98	204.97	0	3624.01
MW-66	4/18/2006	3828.98	205.44	0	3623.54
MW-66	10/11/2006	3828.98	204.64	0	3624.34
MW-66	4/16/2007	3828.98	205.51	0	3623.47
MW-66	10/22/2007	3828.98	205.29	0	3623.69
MW-66	5/27/2009	3828.98	206.47	0	3622.51
MW-66	6/21/2010	3828.98	206.82	0	3622.16
MW-66	12/28/2010	3828.98	206.46	0	3622.52
MW-66	6/30/2011	3828.98	206.94	0	3622.04
MW-66	12/15/2011	3828.98	207.46	0	3621.52
MW-66	6/27/2012	3828.98	208.46	0	3620.52
MW-66	12/1/2012	3828.98	208.19	0	3620.79
MW-66	6/1/2013	3828.98	208.46	0	3620.52
MW-66	12/12/2013	3828.98	207.25	0	3621.73
MW-66	6/25/2014	3828.98	208.02	0	3620.96
MW-66	12/16/2014	3828.98	205.98	0	3623.00
MW-66	4/28/2015	3828.98	206.73	0	3622.25
MW-66	10/13/2015	3828.98	206.90	0	3622.08
MW-66	5/24/2016	3828.98	207.28	0	3621.70
MW-66	12/6/2016	3828.98	207.91	0	3621.07
MW-70	**9/18/1991**	**3822.57**	**191.59**	**0**	**3630.98**
MW-70	10/22/1991	3822.57	191.68	0	3630.89
MW-70	11/15/1991	3822.57	192.20	0	3630.37
MW-70	3/1/1992	3822.57	192.74	0	3629.83
MW-70	4/1/1992	3822.57	192.62	0	3629.95
MW-70	5/1/1992	3822.57	189.97	0	3632.60
MW-70	6/1/1992	3822.57	188.42	0	3634.15
MW-70	7/1/1992	3822.57	188.87	0	3633.70
MW-70	8/1/1992	3822.57	189.54	0	3633.03
MW-70	9/1/1992	3822.57	190.02	0	3632.55
MW-70	10/1/1992	3822.57	190.48	0	3632.09
MW-70	11/1/1992	3822.57	190.86	0	3631.71

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-70	12/1/1992	3822.57	191.17	0	3631.40
MW-70	1/1/1993	3822.57	191.39	0	3631.18
MW-70	2/1/1993	3822.57	191.54	0	3631.03
MW-70	3/1/1993	3822.57	191.77	0	3630.80
MW-70	4/1/1993	3822.57	191.80	0	3630.77
MW-70	5/1/1993	3822.57	192.09	0	3630.48
MW-70	6/1/1993	3822.57	192.18	0	3630.39
MW-70	7/1/1993	3822.57	192.32	0	3630.25
MW-70	8/1/1993	3822.57	192.30	0	3630.27
MW-70	9/1/1993	3822.57	192.53	0	3630.04
MW-70	10/1/1993	3822.57	192.65	0	3629.92
MW-70	11/1/1993	3822.57	192.91	0	3629.66
MW-70	12/1/1993	3822.57	192.96	0	3629.61
MW-70	1/1/1994	3822.57	192.99	0	3629.58
MW-70	2/1/1994	3822.57	194.02	0	3628.55
MW-70	3/1/1994	3822.57	194.00	0	3628.57
MW-70	4/1/1994	3822.57	193.19	0	3629.38
MW-70	5/1/1994	3822.57	193.86	0	3628.71
MW-70	7/1/1994	3822.57	193.59	0	3628.98
MW-70	8/1/1994	3822.57	193.09	0	3629.48
MW-70	9/1/1994	3822.57	193.17	0	3629.40
MW-70	10/1/1994	3822.57	193.38	0	3629.19
MW-70	12/1/1994	3822.57	194.58	0	3627.99
MW-70	1/1/1995	3822.57	192.83	0	3629.74
MW-70	4/1/1995	3822.57	194.11	0	3628.46
MW-70	7/1/1995	3822.57	194.19	0	3628.38
MW-70	10/1/1995	3822.57	194.19	0	3628.38
MW-70	1/16/1996	3822.57	194.68	0	3627.89
MW-70	4/17/1996	3822.57	194.94	0	3627.63
MW-70	7/15/1996	3822.57	194.70	0	3627.87
MW-70	10/13/1996	3822.57	193.98	0	3628.59
MW-70	2/3/1997	3822.57	194.47	0	3628.10
MW-70	4/28/1997	3822.57	195.01	0	3627.56
MW-70	7/14/1997	3822.57	195.44	0	3627.13
MW-70	10/1/1997	3822.57	196.20	0	3626.37
MW-70	10/13/1997	3822.57	196.05	0	3626.52
MW-70	10/29/1997	3822.57	196.24	0.01	3626.33
MW-70	11/4/1997	3822.57	196.35	0	3626.22
MW-70	11/12/1997	3822.57	196.34	0	3626.23
MW-70	11/19/1997	3822.57	196.36	0.01	3626.21
MW-70	11/24/1997	3822.57	196.36	0	3626.21
MW-70	12/10/1997	3822.57	196.47	0	3626.10
MW-70	1/27/1998	3822.57	196.22	0	3626.35
MW-70	2/25/1998	3822.57	196.45	0	3626.12
MW-70	4/27/1998	3822.57	196.48	0	3626.09
MW-70	5/28/1998	3822.57	196.91	0	3625.66
MW-70	6/15/1998	3822.57	196.74	0	3625.83
MW-70	10/9/1998	3822.57	197.27	0	3625.30
MW-70	1/27/1999	3822.57	199.24	0	3623.33
MW-70	4/19/1999	3822.57	197.40	0	3625.17
MW-70	1/5/2000	3822.57	197.73	0	3624.84
MW-70	4/26/2000	3822.57	197.71	0	3624.86
MW-70	9/27/2000	3822.57	198.02	0	3624.55
MW-70	4/16/2001	3822.57	198.34	0	3624.23
MW-70	10/29/2001	3822.57	198.30	0	3624.27
MW-70	4/15/2002	3822.57	198.85	0	3623.72

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-70	10/14/2002	3822.57	196.95	0	3625.62
MW-70	04/15/2003	3822.57	198.12	0	3624.45
MW-70	10/14/2003	3822.57	199.14	0	3623.43
MW-70	4/5/2004	3822.57	199.41	0	3623.16
MW-70	10/5/2004	3822.57	197.30	0	3625.27
MW-70	4/19/2005	3822.57	197.70	0	3624.87
MW-70	10/24/2005	3822.57	197.24	0	3625.33
MW-70	4/18/2006	3822.57	198.46	0	3624.11
MW-70	10/11/2006	3822.57	196.99	0	3625.58
MW-70	4/17/2007	3822.57	198.51	0	3624.06
MW-70	10/22/2007	3822.57	198.03	0	3624.54
MW-70	5/27/2009	3822.57	199.45	0	3623.12
MW-70	6/21/2010	3822.57	199.54	0	3623.03
MW-70	12/28/2010	3822.57	199.13	0	3623.44
MW-70	6/30/2011	3822.57	199.75	0	3622.82
MW-70	12/15/2011	3822.57	204.65	0	3617.92
MW-70	6/27/2012	3822.57	201.46	0	3621.11
MW-70	12/1/2012	3822.57	200.14	0	3622.43
MW-70	6/1/2013	3822.57	200.49	0	3622.08
MW-70	12/12/2013	3822.57	NM	NM	NM
MW-70	6/25/2014	3822.57	201.74	0	3620.83
MW-70	12/16/2014	3822.57	198.48	0	3624.09
MW-70	4/28/2015	3822.57	199.29	0	3623.28
MW-70	10/13/2015	3822.57	199.69	0	3622.88
MW-70	5/24/2016	3822.57	200.21	0	3622.36
MW-70	12/6/2016	3822.57	199.86	0	3622.71
MW-81	**10/1/1995**	**3817.03**	**195.77**	**2.74**	**3623.26**
MW-81	1/16/1996	3817.03	199.04	4.29	3621.12
MW-81	4/17/1996	3817.03	204.35	9.95	3619.94
MW-81	7/16/1996	3817.03	204.26	9.37	3619.61
MW-81	10/13/1996	3817.03	202.11	8.49	3621.11
MW-81	2/4/1997	3817.03	197.25	2.11	3621.32
MW-81	4/28/1997	3817.03	204.40	9.15	3619.30
MW-81	7/14/1997	3817.03	196.19	1.45	3621.89
MW-81	10/9/1997	3817.03	200.02	0.02	3617.02
MW-81	10/14/1997	3817.03	200.96	0.06	3616.11
MW-81	10/29/1997	3817.03	202.44	1.44	3615.64
MW-81	11/4/1997	3817.03	200.92	0	3616.11
MW-81	11/12/1997	3817.03	200.95	0.25	3616.26
MW-81	11/19/1997	3817.03	200.94	0.01	3616.09
MW-81	11/24/1997	3817.03	200.81	0	3616.22
MW-81	12/10/1997	3817.03	200.85	0	3616.18
MW-81	1/6/1998	3817.03	199.35	0	3617.68
MW-81	1/15/1998	3817.03	199.30	0	3617.73
MW-81	1/20/1998	3817.03	200.89	0.79	3616.71
MW-81	1/27/1998	3817.03	200.14	0.89	3617.53
MW-81	2/3/1998	3817.03	200.88	0.58	3616.57
MW-81	2/10/1998	3817.03	206.74	1.64	3611.48
MW-81	2/17/1998	3817.03	218.70	12.08	3607.14
MW-81	2/25/1998	3817.03	217.41	11.41	3607.94
MW-81	4/27/1998	3817.03	197.05	0	3619.98
MW-81	5/28/1998	3817.03	192.28	0	3624.75
MW-81	6/15/1998	3817.03	197.58	0	3619.45
MW-81	10/11/1998	3817.03	193.23	0	3623.80
MW-81	1/27/1999	3817.03	200.12	0	3616.91

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-81	4/19/1999	3817.03	200.84	0	3616.19
MW-81	1/5/2000	3817.03	199.38	0	3617.65
MW-81	4/26/2000	3817.03	201.35	0	3615.68
MW-81	9/27/2000	3817.03	202.99	0	3614.04
MW-81	4/16/2001	3817.03	201.94	0	3615.09
MW-81	10/29/2001	3817.03	204.69	0	3609.04
MW-81	4/15/2002	3817.03	193.94	0	3623.09
MW-81	10/14/2002	3817.03	192.80	0	3624.23
MW-81	04/15/2003	3817.03	193.41	0	3623.62
MW-81	10/14/2003	3817.03	194.42	0	3622.61
MW-81	4/5/2004	3817.03	194.58	0	3622.45
MW-81	10/5/2004	3817.03	192.67	2.96	3626.52
MW-81	4/19/2005	3817.03	193.75	0	3623.28
MW-81	10/24/2005	3817.03	192.46	0	3624.57
MW-81	4/18/2006	3817.03	192.78	0	3624.25
MW-81	10/11/2006	3817.03	194.15	2.56	3624.75
MW-81	4/16/2007	3817.03	198.12	6.32	3614.30
MW-81	10/22/2007	3817.03	189.54	0	3627.49
MW-81	5/27/2009	3817.03	193.97	0.10	3623.13
MW-81	6/21/2010	3817.03	194.21	0.22	3622.98
MW-81	12/28/2010	3817.03	193.88	0.26	3623.34
MW-81	6/30/2011	3817.03	194.10	1.23	3623.83
MW-81	12/15/2011	3817.03	194.85	0.3	3622.40
MW-81	6/27/2012	3817.03	195.21	0.32	3622.05
MW-81	12/1/2012	3817.03	195.61	0.29	3621.63
MW-81	6/1/2013	3817.03	196.13	0.2	3621.05
MW-81	12/12/2013	3817.03	194.77	0.23	3622.43
MW-81	6/25/2014	3817.03	195.45	0.24	3621.76
MW-81	12/16/2014	3817.03	183.04	0	3633.99
MW-81	4/28/2015	3817.03	193.71	0	3623.32
MW-81	10/13/2015	3817.03	189.27	0	3627.76
MW-81	5/24/2016	3817.03	194.25	0.001	3622.78
MW-81	12/6/2016	3817.03	193.80	0.001	3623.23
MW-88	**8/1/1996**	**3789.70**	**163.59**	**0**	**3626.11**
MW-88	10/13/1996	3789.70	162.22	0	3627.48
MW-88	2/4/1997	3789.70	163.38	0	3626.32
MW-88	4/28/1997	3789.70	163.54	0	3626.16
MW-88	7/14/1997	3789.70	163.84	0	3625.86
MW-88	10/1/1997	3789.70	164.40	0	3625.30
MW-88	10/9/1997	3789.70	164.38	0	3625.32
MW-88	10/13/1997	3789.70	164.34	0	3625.36
MW-88	1/27/1998	3789.70	164.41	0	3625.29
MW-88	4/27/1998	3789.70	164.84	0	3624.86
MW-88	5/28/1998	3789.70	164.00	0	3625.70
MW-88	6/15/1998	3789.70	164.87	0	3624.83
MW-88	10/10/1998	3789.70	165.38	0	3624.32
MW-88	1/27/1999	3789.70	165.49	0	3624.21
MW-88	4/19/1999	3789.70	165.54	0	3624.16
MW-88	1/5/2000	3789.70	165.62	0	3624.08
MW-88	4/26/2000	3789.70	165.87	0	3623.83
MW-88	9/27/2000	3789.70	166.25	0	3623.45
MW-88	4/16/2001	3789.70	166.21	0	3623.49
MW-88	10/29/2001	3789.70	166.49	0	3623.21
MW-88	4/15/2002	3789.70	166.53	0	3623.17
MW-88	10/14/2002	3789.70	165.52	0	3624.18

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-88	04/15/2003	3789.70	165.98	0	3623.72
MW-88	10/14/2003	3789.70	166.89	0	3622.81
MW-88	4/5/2004	3789.70	167.15	0	3622.55
MW-88	10/5/2004	3789.70	163.52	0	3626.18
MW-88	4/19/2005	3789.70	166.38	0	3623.32
MW-88	10/24/2005	3789.70	165.67	0	3624.03
MW-88	4/18/2006	3789.70	166.15	0	3623.55
MW-88	10/11/2006	3789.70	165.49	0	3624.21
MW-88	4/16/2007	3789.7	166.11	0	3623.59
MW-88	10/22/2007	3789.70	165.92	0	3623.78
MW-88	5/27/2009	3789.70	166.91	0	3622.79
MW-88	6/21/2010	3789.70	167.28	0	3622.42
MW-88	12/28/2010	3789.70	166.92	0	3622.78
MW-88	6/30/2011	3789.70	167.45	0	3622.25
MW-88	12/15/2011	3789.70	167.81	0	3621.89
MW-88	6/27/2012	3789.70	169.00	0	3620.70
MW-88	12/1/2012	3789.70	168.65	0	3621.05
MW-88	6/1/2013	3789.70	168.96	0	3620.74
MW-88	12/12/2013	3789.70	167.90	0	3621.80
MW-88	6/25/2014	3789.70	178.46	0	3611.24
MW-88	12/16/2014	3789.70	166.55	0	3623.15
MW-88	4/28/2015	3789.70	167.16	0	3622.54
MW-88	10/13/2015	3789.70	167.38	0	3622.32
MW-88	5/24/2016	3789.70	167.77	0	3621.93
MW-88	12/6/2016	3789.70	167.37	0	3622.33

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-111	**6/19/1998**	**3824.44**	**200.24**	**0**	**3624.20**
MW-111	10/10/1998	3824.44	200.89	0	3623.55
MW-111	1/27/1999	3824.44	201.24	0	3623.20
MW-111	4/19/1999	3824.44	201.26	0	3623.18
MW-111	1/5/2000	3824.44	201.21	0	3623.23
MW-111	4/26/2000	3824.44	201.48	0	3622.96
MW-111	9/27/2000	3824.44	201.66	0	3622.78
MW-111	4/16/2001	3824.44	201.74	0	3622.70
MW-111	10/29/2001	3824.44	201.64	0	3622.80
MW-111	4/15/2002	3824.44	201.83	0	3622.61
MW-111	10/14/2002	3824.44	200.52	0	3623.92
MW-111	04/15/2003	3824.44	201.21	0	3623.23
MW-111	10/14/2003	3824.44	202.50	0	3621.94
MW-111	4/5/2004	3824.44	202.54	0	3621.90
MW-111	10/5/2004	3824.44	200.25	0	3624.19
MW-111	4/19/2005	3824.44	201.09	0	3623.35
MW-111	10/24/2005	3824.44	200.61	0	3623.83
MW-111	4/18/2006	3824.44	201.17	0	3623.27
MW-111	10/11/2006	3824.44	200.06	0	3624.38
MW-111	4/16/2007	3824.44	201.28	0	3623.16
MW-111	10/22/2007	3824.44	201.24	0	3623.20
MW-111	5/27/2009	3824.44	202.50	0	3621.94
MW-111	6/21/2010	3824.44	202.92	0	3621.52
MW-111	12/28/2010	3824.44	202.48	0	3621.96
MW-111	6/30/2011	3824.44	202.94	0	3621.50
MW-111	12/15/2011	3824.44	203.51	0	3620.93
MW-111	6/27/2012	3824.44	204.58	0	3619.86
MW-111	12/1/2012	3824.44	204.20	0	3620.24
MW-111	6/1/2013	3824.44	204.58	0	3619.86
MW-111	12/12/2013	3824.44	202.99	0	3621.45
MW-111	6/25/2014	3824.44	204.10	0	3620.34
MW-111	12/16/2014	3824.44	201.65	0	3622.79
MW-111	4/28/2015	3824.44	202.64	0	3621.80
MW-111	10/13/2015	3824.44	202.92	0	3621.52
MW-111	5/24/2016	3824.44	203.21	0	3621.23
MW-111	12/6/2016	3824.44	202.95	0	3621.49
MW-113	**1/5/2000**	**3772.67**	**147.43**	**0**	**3625.24**
MW-113	4/26/2000	3772.67	148.28	0.88	3625.03
MW-113	9/27/2000	3772.67	147.72	0	3624.95
MW-113	4/16/2001	3772.67	148.11	0.13	3624.65
MW-113	10/29/2001	3772.67	148.95	0.2	3623.87
MW-113	4/15/2002	3772.67	148.72	0.14	3624.05
MW-113	10/14/2002	3772.67	147.33	0	3625.34
MW-113	04/15/2003	3772.67	148.69	0.53	3624.37
MW-113	10/14/2003	3772.67	149.24	0.21	3623.58
MW-113	4/5/2004	3772.67	142.42	0.2	3630.40
MW-113	10/5/2004	3772.67	144.58	0	3628.09
MW-113	4/19/2005	3772.67	147.90	0	3624.77
MW-113	10/24/2005	3772.67	147.51	0	3625.16
MW-113	4/18/2006	3772.67	148.21	0	3624.46
MW-113	10/11/2006	3772.67	147.29	0	3625.38
MW-113	4/17/2007	3772.67	148.61	0.31	3623.83
MW-113	10/22/2007	3772.67	NA	--	--
MW-113	5/27/2009	3772.67	149.10	T	3623.57
MW-113	6/21/2010	3772.67	149.47	0.05	3623.16

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

Appendix A
Historic Fluid Level Data
May 1991 - December 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Date	Measuring Point Elevation (feet amsl)	Depth to Water (feet bmp)	Condensate Thickness (feet)	Corrected Water-Level Elevation (feet amsl)
MW-113	12/28/2010	3772.67	149.09	0.04	3623.55
MW-113	6/30/2011	3772.67	149.55	0.05	3623.08
MW-113	12/15/2011	3772.67	150.10	0.04	3622.54
MW-113	6/27/2012	3772.67	150.34	0.14	3622.23
MW-113	12/1/2012	3772.67	150.87	0.81	3622.39
MW-113	6/1/2013	3772.67	151.07	0.79	3622.18
MW-113	12/12/2013	3772.67	150.03	0	3622.64
MW-113	6/25/2014	3772.67	150.51	0.01	3622.15
MW-113	12/16/2014	3772.67	148.65	0	3624.02
MW-113	4/28/2015	3772.67	149.34	0	3623.33
MW-113	10/13/2015	3772.67	149.42	0	3623.25
MW-113	5/24/2016	3772.67	149.97	0.001	3622.70
MW-113	12/6/2016	3772.67	149.41	0.001	3623.26
MW-127	**1/5/2000**	**3825.17**	**202.12**	**0**	**3623.05**
MW-127	4/26/2000	3825.17	202.34	0.46	3623.17
MW-127	9/27/2000	3825.17	202.00	0	3623.17
MW-127	4/16/2001	3825.17	202.70	0.07	3622.52
MW-127	10/29/2001	3825.17	202.51	0.03	3622.68
MW-127	4/15/2002	3825.17	202.74	0	3622.43
MW-127	10/14/2002	3825.17	200.92	0	3624.25
MW-127	04/15/2003	3825.17	202.50	0	3622.67
MW-127	10/14/2003	3825.17	202.99	0	3622.18
MW-127	4/5/2004	3825.17	203.15	0	3622.02
MW-127	10/5/2004	3825.17	200.48	0	3624.69
MW-127	4/19/2005	3825.17	201.81	0	3623.36
MW-127	10/24/2005	3825.17	201.00	0	3624.17
MW-127	4/18/2006	3825.17	201.80	0	3623.37
MW-127	10/11/2006	3825.17	200.66	0	3624.51
MW-127	4/17/2007	3825.17	202.3	0	3622.87
MW-127	10/22/2007	3825.17	201.97	0	3623.20
MW-127	5/27/2009	3825.17	203.10	0	3622.07
MW-127	6/21/2010	3825.17	203.46	0	3621.71
MW-127	12/28/2010	3825.17	202.88	0	3622.29
MW-127	6/30/2011	3825.17	203.27	0	3621.90
MW-127	12/15/2011	3825.17	203.87	0	3621.30
MW-127	6/27/2012	3825.17	204.95	0	3620.22
MW-127	12/1/2012	3825.17	204.14	0	3621.03
MW-127	6/1/2013	3825.17	204.95	0	3620.22
MW-127	12/12/2013	3825.17	203.39	0	3621.78
MW-127	6/25/2014	3825.17	204.47	0	3620.70
MW-127	12/16/2014	3825.17	202.08	0	3623.09
MW-127	4/28/2015	3825.17	203.03	0	3622.14
MW-127	10/13/2015	3825.17	203.13	0	3622.04
MW-127	5/24/2016	3825.17	203.56	0	3621.61
MW-127	12/6/2016	3825.17	203.26	0	3621.91

Notes:
* MW-77 DTW does not agree with historical data.

D = Dry
NA = Not Available
NG = Not Gauged
NR = No Record

APPENDIX B

Historical Analytical Data

Appendix B
Wet Chemistry, 1991 through 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

		Wet Chemistry Analytical Data (mg/L)	
	Constituent	Total Dissolved Solids (TDS)	Chloride
	New Mexico Standards	1,000	250
Station or Well Name	Sample Collection Date		
MW-014	**6/22/1998**	**1,400**	**330**
MW-014	4/18/2002	1,200	300
MW-014	10/24/2003	1,100	150
MW-014 (Dup 1)	10/24/2003	1,000	140
MW-014	4/25/2005	1,130	230
MW-014 (Dup 1)	4/25/2005	1,100	232
MW-014	4/27/2006	1,110	209
MW-014 (Dup 1)	4/27/2006	1,110	207
MW-014	4/20/2007	1,060	196
MW-014 (Dup 1)	4/20/2007	1,010	194
MW-014	6/25/2014	1,430	61.6
MW-014	4/30/2015	1,320	268
MW-014	5/25/2016	1,400	266
MW-045	**6/1/1991**	**5,440**	**507**
MW-045	9/1/1991	3,920	NA
MW-045	12/1/1991	NA	354
MW-045	7/15/1993	NA	434
MW-045	10/14/1993	NA	408
MW-045	1/13/1994	NA	440
MW-045	4/6/1994	NA	430
MW-045	7/20/1994	NA	429
MW-045	5/29/2009	2,540	174
MW-045	6/23/2010	4,190	473
MW-045	7/1/2011	3,630	208
MW-045	6/28/2012	3,840	314
MW-045	6/25/2014	4,120	98.7
MW-045	4/30/2015	5,990	209
MW-045	5/25/2016	5,400	238
MW-045 (Dup 1)	5/25/2016	5,340	245
MW-046	**6/1/1991**	**1,220**	**152**
MW-046	7/1/1991	NA	45
MW-046	10/1/1996	NA	170
MW-046	2/11/1997	NA	220
MW-046	5/29/1997	1,300	132
MW-046	7/18/1997	NA	180
MW-046	6/21/1998	940	140
MW-046	4/20/1999	580	31
MW-046	4/28/2000	565	25.8
MW-046	4/19/2001	570	47
MW-046	4/17/2002	490	37
MW-046	4/8/2004	2,300	340
MW-046	4/27/2005	1,090	116
MW-046	4/23/2007	1,770	132
MW-046	6/25/2014	870	103

Notes:
NA No analysis performed
mg/L Milligrams per liter
1,100 Indicates result at/above the applicable standard
<5 Indicates the result is below the specified laboratory detection limit

Appendix B
Wet Chemistry, 1991 through 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

		Wet Chemistry Analytical Data (mg/L)	
	Constituent	Total Dissolved Solids (TDS)	Chloride
	New Mexico Standards	1,000	250
MW-049	6/1/1991	3,910	365
MW-049	6/25/1991	NA	NA
MW-049	7/15/1993	NA	399
MW-049	10/14/1993	NA	397
MW-049	1/13/1994	NA	400
MW-049	4/6/1994	NA	380
MW-049	7/20/1994	NA	368
MW-049	10/5/1994	NA	380
MW-049	1/11/1995	NA	389
MW-049	4/6/1995	NA	390
MW-049	7/21/1995	NA	380
MW-049	10/12/1995	NA	350
MW-049	1/20/1996	NA	410
MW-049	4/19/1996	NA	400
MW-049	7/1/1996	NA	360
MW-049	10/1/1996	NA	36
MW-049	2/7/1997	NA	410
MW-049	3/20/1997	3,100	NA
MW-049	7/18/1997	NA	350
MW-049	6/21/1998	2,800	630
MW-049	4/20/1999	3,000	410
MW-049	4/27/2000	3,320	379
MW-049	4/17/2001	3,100	350
MW-049	4/17/2002	2,600	450
MW-049	10/28/2003	2,900	570
MW-049	4/9/2004	2,900	440
MW-049 (Dup-1)	4/9/2004	3,000	410
MW-049	4/25/2005	3,960	345
MW-049	4/26/2006	3,400	318
MW-049	4/20/2007	2,990	325
MW-049	5/28/2009	3,090	370
MW-049	6/23/2010	2,650	408
MW-049	7/1/2011	3,250	347
MW-049	6/28/2012	3,640	325
MW-049	6/28/2013	4,290	289
MW-049	6/25/2014	3,570	356
MW-049	4/30/2015	5,220	464
MW-049	5/25/2016	4,900	379
MW-058	12/1/1991	NA	124
MW-058	4/1/1992	NA	156
MW-058	7/1/1992	NA	149
MW-058	10/1/1992	NA	155
MW-058	1/1/1993	NA	175
MW-058	4/13/1993	NA	133
MW-058	7/13/1993	NA	133
MW-058	10/13/1993	NA	59
MW-058	4/5/1994	NA	48

Notes:
NA No analysis performed
mg/L Milligrams per liter
1,100 Indicates result at/above the applicable standard
<5 Indicates the result is below the specified laboratory detection limit

Appendix B
Wet Chemistry, 1991 through 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

		Wet Chemistry Analytical Data (mg/L)	
	Constituent	Total Dissolved Solids (TDS)	Chloride
	New Mexico Standards	1,000	250
MW-058	7/19/1994	NA	38
MW-058	10/6/1994	NA	36
MW-058	1/11/1995	NA	26
MW-058	4/8/1995	NA	39
MW-058	4/18/1996	NA	29
MW-058	10/1/1996	NA	38
MW-058	6/22/1998	760	42
MW-058	12/1/1991	NA	124
MW-058	4/1/1992	NA	156
MW-058	7/1/1992	NA	149
MW-058	10/1/1992	NA	155
MW-058	1/1/1993	NA	175
MW-058	4/13/1993	NA	133
MW-058	7/13/1993	NA	133
MW-058	10/13/1993	NA	59
MW-058	4/5/1994	NA	48
MW-058	7/19/1994	NA	38
MW-058	10/6/1994	NA	36
MW-058	1/11/1995	NA	26
MW-058	4/8/1995	NA	39
MW-058	4/18/1996	NA	29
MW-058	10/1/1996	NA	38
MW-058	6/22/1998	760	42
MW-066	**12/1/1991**	**NA**	**9**
MW-066	4/1/1992	NA	8
MW-066	7/1/1991	NA	8
MW-066	10/1/1992	NA	8
MW-066	1/1/1993	NA	12
MW-066	4/13/1993	NA	8
MW-066	7/13/1993	NA	15
MW-066	10/12/1993	NA	7
MW-066	1/1/1994	NA	9
MW-066	4/7/1994	NA	8.7
MW-066	7/19/1994	NA	<u><5</u>
MW-066	104/94	NA	8.8
MW-066	1/9/1995	NA	6
MW-066	4/11/1995	NA	8.9
MW-066	7/19/1995	NA	8
MW-066	10/10/1995	NA	9
MW-066	1/19/1996	NA	10
MW-066	4/17/1996	NA	9.6
MW-066	7/1/1996	NA	6
MW-066	10/1/1996	NA	7
MW-066	2/5/1997	NA	9
MW-066	5/6/1997	NA	9
MW-066	7/16/1997	NA	8
MW-066	10/15/1997	NA	NA
MW-066	6/17/1998	760	13

Notes:
NA No analysis performed
mg/L Milligrams per liter
<u>1,100</u> Indicates result at/above the applicable standard
<5 Indicates the result is below the specified laboratory detection limit

Appendix B
Wet Chemistry, 1991 through 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

		Wet Chemistry Analytical Data (mg/L)	
	Constituent	Total Dissolved Solids (TDS)	Chloride
	New Mexico Standards	1,000	250
MW-066	4/21/1999	730	10
MW-066	4/27/2000	848	8.61
MW-066	4/18/2001	660	9.3
MW-066	4/19/2002	790	8.8
MW-066	10/22/2003	770	8.4
MW-066	4/6/2004	810	8.0
MW-066	4/21/2005	867	10.8
MW-066	4/19/2006	797	11.1
MW-066	4/18/2007	795	10.5
MW-066	5/27/2009	865	8.29
MW-066	6/22/2010	768	9.09
MW-066	6/30/2011	817	8.60
MW-066	6/28/2012	687	9.6
MW-066	6/25/2014	793	8.5
MW-066	4/29/2015	822	9.5
MW-066	5/24/2016	839	8.1
MW-070	**12/1/1991**	**NA**	**10**
MW-070	4/1/1992	NA	8
MW-070	7/1/1992	NA	9.2
MW-070	10/1/1992	NA	17
MW-070	1/1/1993	NA	8
MW-070	4/14/1993	NA	8
MW-070	7/13/1993	NA	8
MW-070	10/12/1993	NA	11
MW-070	1/11/1994	NA	10
MW-070	4/6/1994	NA	9.5
MW-070	7/18/1994	NA	8
MW-070	10/4/1994	NA	9.5
MW-070	1/9/1995	NA	9
MW-070	4/5/1995	NA	9.7
MW-070	7/18/1995	NA	9
MW-070	10/10/1995	NA	10
MW-070	1/18/1996	NA	11
MW-070	4/17/1996	NA	9.7
MW-070	7/1/1996	NA	8
MW-070	10/1/1996	NA	10
MW-070	2/5/1997	NA	10
MW-070	10/15/1997	NA	NA
MW-070	6/16/1998	370	12
MW-070	4/22/1999	310	11
MW-070	4/27/2000	385	8.61
MW-070	4/24/2001	270	9.8
MW-070	4/18/2002	310	15
MW-070	10/23/2003	350	10
MW-070	4/12/2004	420	9.9
MW-070	4/26/2005	336	11.6
MW-070	4/20/2006	328	11.5
MW-070	4/24/2007	1,150	21.9

Notes:
NA No analysis performed
mg/L Milligrams per liter
1,100 Indicates result at/above the applicable standard
<5 Indicates the result is below the specified laboratory detection limit

Appendix B
Wet Chemistry, 1991 through 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

		Wet Chemistry Analytical Data (mg/L)	
	Constituent	Total Dissolved Solids (TDS)	Chloride
	New Mexico Standards	1,000	250
MW-070	5/27/2009	508	10.2
MW-070	6/23/2010	350	9.96
MW-070	6/30/2011	426	9.5
MW-070	6/28/2012	509	33.3
MW-070	4/29/2015	377	109
MW-070	5/24/2016	402	9.6
MW-077	**7/21/1995**	**NA**	**110**
MW-077	1/20/1996	NA	120
MW-077	4/19/1996	NA	120
MW-077	7/1/1996	NA	100
MW-077	10/1/1996	NA	140
MW-077	5/7/1997	NA	150
MW-077	7/18/1997	NA	150
MW-077	10/24/2003	590	57
MW-077	4/7/2004	550	40
MW-077	4/27/2005	1,110	180
MW-077	4/26/2006	521	55
MW-077	6/23/2010	545	48
MW-077	6/30/2011	467	26.9
MW-077	6/25/2014	537	39.9
MW-081	**6/29/1998**	**800**	**16**
MW-088	**2/5/1997**	**970**	**30**
MW-088	4/30/1997	NA	26
MW-088	10/15/1997	NA	NA
MW-088	6/18/1998	840	22
MW-088	4/21/1999	800	24
MW-088	4/28/2000	876	43.1
MW-088	4/17/2001	770	23
MW-088	4/19/2002	750	35
MW-088	10/21/2003	810	22
MW-088	4/6/2004	820	19
MW-088	4/21/2005	945	27.8
MW-088	4/20/2006	780	29.7
MW-088	4/19/2007	861	32.8
MW-088	5/27/2009	937	48.1
MW-088	6/22/2010	919	35.2
MW-088	6/30/2011	946	41.1
MW-088	6/28/2012	912	29.8
MW-088	6/25/2014	863	26.2
MW-088	4/29/2015	914	30.6
MW-088	5/24/2016	975	27.4
MW-106	**2/11/1997**	**430**	**10**
MW-106	5/7/1997	NA	4
MW-106	7/18/1997	NA	5
MW-106	6/18/1998	380	4

Notes:
NA No analysis performed
mg/L Milligrams per liter
1,100 Indicates result at/above the applicable standard
<5 Indicates the result is below the specified laboratory detection limit

Appendix B
Wet Chemistry, 1991 through 2016
OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

		Wet Chemistry Analytical Data (mg/L)	
	Constituent	Total Dissolved Solids (TDS)	Chloride
	New Mexico Standards	1,000	250
MW-106	4/29/1999	NA	12
MW-106	5/1/2000	350	3.45
MW-106	4/18/2001	340	5.6
MW-106	4/17/2002	350	12
MW-106	10/21/2003	350	3.1
MW-106	4/5/2004	540	3.3
MW-106	4/20/2005	405	3.58
MW-106	4/19/2006	371	4.34
MW-106	4/18/2007	396	4.17
MW-106	6/23/2010	349	3.12
MW-106	6/30/2011	368	2.3
MW-106	6/28/2012	374	3.8
MW-106	6/28/2013	387	2.5
MW-106	6/25/2014	374	2.5
MW-106	4/30/2015	388	4.8
MW-106	5/23/2016	388	2.9
MW-111	**6/29/1998**	**900**	**100**
MW-111	4/21/1999	760	120
MW-111	4/27/2000	994	103
MW-111	4/18/2001	800	100
MW-111	4/19/2002	750	100
MW-111	10/22/2003	800	98
MW-111	4/7/2004	790	70
MW-111	4/21/2005	932	101
MW-111	4/19/2006	872	88.6
MW-111	4/18/2007	874	86.4
MW-111	5/27/2009	886	67.9
MW-111	6/22/2010	750	70.2
MW-111	6/30/2011	798	92.8
MW-111	6/28/2012	695	58.4
MW-111	6/28/2013	787	56.8
MW-111	6/25/2014	703	59.9
MW-111	4/30/2015	695	68.7
MW-111	5/27/2016	677	43.3
MW-127	**5/28/2009**	**766**	**77.1**
MW-127	6/23/2010	746	44.4
MW-127	7/1/2011	715	42.3
MW-127	6/28/2012	720	42.5
MW-127	6/28/2013	779	42.5
MW-127	6/25/2014	863	26.1
MW-127	4/30/2015	665	49.1
MW-127	5/25/2016	665	45.9

Notes:
NA No analysis performed
mg/L Milligrams per liter
1,100 Indicates result at/above the applicable standard
<5 Indicates the result is below the specified laboratory detection limit

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-14	**09/01/91**	**5100**	**--**	**--**	**--**
MW-14	06/22/98	820	<10	840	<10
MW-14	04/18/02	116	9	<5	<5
MW-14	10/16/02	23	<5	5	<5
MW-14	04/09/03	<5	<5	<5	<5
MW-14	10/24/03	330	<5	<5	<5
MW-14		Not Sampled - Condensate Present			
MW-14	04/25/05	174	<5	<5	<15
MW-14	04/27/06	31.9	<2.74	<2.03	<5.81
MW-14	04/20/07	30	<5	<5	<15
MW-14	05/27/09	1.1	<1	1.1	17
MW-14	06/23/10	1.1	<1	2.9	19.4
MW-14	06/30/11	Not Sampled - not enough water to collect sample			
MW-14	06/28/12	Not Sampled - not enough water to collect sample			
MW-14	06/28/13	Not Sampled - not enough water to collect sample			
MW-14	06/26/14	2.6	<1	<1	<3
MW-14	04/30/15	2.6	<1	<1	<3
MW-14	05/25/16	<1	<1	<1	<3
MW-45	**06/01/91**	**<1**	**--**	**--**	**--**
MW-45	06/22/91	--	<1	<1	<1
MW-45	09/01/91	<1	--	--	--
MW-45	12/01/91	<1	<1	<1	<1
MW-45	07/15/93	<3	6	7	4
MW-45	10/14/93	<3	3	<3	3
MW-45	01/13/94	<0.5	<0.5	<0.5	<0.5
MW-45	04/06/94	<0.5	<0.5	<0.5	<0.5
MW-45	07/20/94	<0.5	<0.5	<0.5	<0.5
MW-45	05/29/09	<1	<1	<1	1.7
MW-45	06/23/10	<1	<1	<1	<1
MW-45	07/01/11	<1	<1	<1	<3
MW-45	06/28/12	28.7	<1	0.57	<3
MW-45	06/28/13	Not Sampled - not enough water to collect sample			
MW-45	06/26/14	<1	<1	<1	<3
MW-45	04/30/15	<1	<1	<1	<3
MW-45	05/25/16	<1	<1	<1	<3
MW-46	**06/01/91**	**3200**	**--**	**--**	**--**
MW-46	06/22/91	--	<50	900	<50
MW-46	07/01/91	300	--	--	--
MW-46	07/19/91	--	<50	250	--
MW-46	07/30/91	--	--	--	250
MW-46	09/01/91	140	--	--	--
MW-46	10/01/96	900	33	440	59
MW-46	02/11/97	3300	550	1000	1400
MW-46	05/29/97	5000	1200	230	<100
MW-46	07/18/97	6100	1900	270	130
MW-46	04/30/98	1600	41	140	290
MW-46	07/01/98	1700	<5	97	120
MW-46	04/20/99	210	<5	11	20
MW-46	12/08/99	50	43	34	129
MW-46	04/28/00	17	<1	<1	<1
MW-46	10/02/00	12	39	19	128

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-46	04/19/01	<5	<5	<5	<10
MW-46	10/31/01	<100	<100	<100	<200
MW-46	04/17/02	<5	<5	<5	<5
MW-46	10/16/02	14	<5	<5	<5
MW-46	04/09/03	<5	<5	<5	<5
MW-46		Not Sampled - Dry			
MW-46	04/08/04	10	<5	<5	<5
MW-46	04/27/05	<5	<5	<5	<15
MW-46		Not Sampled - Dry			
MW-46	04/23/07	81.4	<5	<5	<15
MW-46	05/27/09	<1	<1	<1	1.1
MW-46	06/23/10	<1	<1	<1	<1
MW-46	06/30/11	Not Sampled - not enough water to collect sample			
MW-46	06/28/12	Not Sampled - not enough water to collect sample			
MW-46	06/28/13	Not Sampled - not enough water to collect sample			
MW-46	06/26/14	220	<1	32.9	68.2
MW-46	04/30/15	Not Sampled - not enough water to collect sample			
MW-49	**06/01/91**	**60**	**--**	**--**	**--**
MW-49	06/22/91	--	<10	60	40
MW-49	09/01/91	35	--	--	--
MW-49	07/15/93	210	27	42	30
MW-49	10/14/93	68	26	9	20
MW-49	01/13/94	13	<5	15	110
MW-49	04/06/94	82	<0.5	11	10
MW-49	07/20/94	150	<5	32	27
MW-49	10/05/94	78	49	40	300
MW-49	01/11/95	220	<5	46	97
MW-49	04/06/95	120	<0.5	24	26
MW-49	07/21/95	17	<0.5	3.5	3.4
MW-49	10/12/95	240	<50	59	130
MW-49	01/20/96	160	130	120	570
MW-49	04/19/96	87	23	18	32
MW-49	07/01/96	370	220	190	630
MW-49	10/01/96	95	16	36	12
MW-49	02/07/97	79	66	45	160
MW-49	07/18/97	130	<1	35	9.8
MW-49	04/30/98	130	39	41	69
MW-49	07/01/98	78	<1	15	<1
MW-49	04/20/99	81	<5	32	<10
MW-49	12/08/99	32	68	58	380
MW-49	04/27/00	24	<1	12	<1
MW-49	10/02/00	35	38	18	107
MW-49	04/17/01	21	36	16	117
MW-49	10/31/01	21	<5	<5	<10
MW-49	04/17/02	19	<5	<5	<5
MW-49	10/16/02	31	<5	<5	<5
MW-49	04/08/03	71	<5	<5	<5
MW-49	10/28/03	97	<5	<5	<5
MW-49	04/08/04	76	<5	<5	<5
MW-49	04/25/05	<5	<5	<5	<15
MW-49	04/26/06	23	<2.74	<2.03	<5.81
MW-49	04/20/07	26	<5	<5	<15

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-49	05/28/09	37	<1	<1	1.2
MW-49	06/23/10	24	<1	<1	<1
MW-49	07/01/11	48	<1	<1	<3
MW-49	06/28/12	<1	<1	<1	<3
MW-49	06/28/13	34.1	<1	<1	<3
MW-49	06/26/14	44.1	<1	<1	<3
MW-49	04/30/15	1.3	<1	<1	<3
MW-49	05/25/16	13.4	<1	<1	<3
MW-58	**09/01/91**	**40**	**--**	**--**	**--**
MW-58	12/01/91	90	40	20	80
MW-58	04/01/92	203	32	56	68
MW-58	07/01/92	178	58	32	44
MW-58	10/01/92	190	49	26	57
MW-58	01/01/93	192	30	23	39
MW-58	04/13/93	55	16	31	9
MW-58	07/13/93	25	42	14	13
MW-58	10/13/93	50	21	212	555
MW-58	04/05/94	<2.5	<2.5	7.4	27
MW-58	07/19/94	2	29	4.5	27
MW-58	10/06/94	6.7	<5	15	39
MW-58	04/08/95	2.2	<0.5	2.1	6.8
MW-58	10/01/96	110	320	940	10000
MW-58	01/30/98	350	23	42	96
MW-58	06/22/98	22	<1	28	35
MW-58	06/28/13	Not Sampled - Condensate Present			
MW-58	06/28/14	Not Sampled - Condensate Present			
MW-58	04/30/15	Not Sampled - Condensate Present			
MW-66	**09/01/91**	**<1**	**--**	**--**	**--**
MW-66	12/01/91	<1	<1	<1	<1
MW-66	04/01/92	4	7	<3	4
MW-66	07/01/92	8	25	7	11
MW-66	10/01/92	12	36	<3	34
MW-66	01/01/93	3	6	3	20
MW-66	04/13/93	<3	5	5	<3
MW-66	07/13/93	8	4	<3	<3
MW-66	10/12/93	13	60	4	29
MW-66	11/10/93	<4	<4	<4	<4
MW-66	01/11/94	<0.5	<0.5	<0.5	0.6
MW-66	04/07/94	<0.5	<0.5	<0.5	<0.5
MW-66	07/19/94	<0.5	0.6	<0.5	0.8
MW-66	10/04/94	<0.5	3	1.5	17
MW-66	01/09/95	<0.5	<0.5	<0.5	<0.5
MW-66	04/11/95	<0.5	<0.5	<0.5	<0.5
MW-66	07/19/95	<0.5	0.9	<0.5	<0.5
MW-66	10/10/95	<0.5	<0.5	<0.5	3.5
MW-66	01/19/96	<0.5	<0.5	<0.5	<0.5
MW-66	04/17/96	<0.5	0.8	<0.5	1
MW-66	07/01/96	<0.5	<0.5	<0.5	0.5
MW-66	10/01/96	<0.5	<0.5	<0.5	<0.5
MW-66	02/05/97	<0.5	<0.5	<0.5	<0.5
MW-66	05/06/97	<0.5	<0.5	<0.5	<0.5

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-66	07/16/97	<0.5	<0.5	<0.5	<0.5
MW-66	10/15/97	<0.5	<0.5	<0.5	<0.5
MW-66	01/29/98	<0.5	<0.5	<0.5	<0.5
MW-66	04/28/98	<0.5	<0.5	<0.5	<0.5
MW-66	06/17/98	<1	1.6	<1	<1
MW-66	10/11/98	<0.5	<0.5	<0.5	<0.5
MW-66	02/01/99	<0.5	<0.5	<0.5	<0.5
MW-66	04/21/99	<5	<5	<5	<10
MW-66	12/10/99	<5	<5	<5	<10
MW-66	04/27/00	<1	<1	<1	<1
MW-66	10/05/00	<5	<5	<5	<10
MW-66	04/18/01	<5	<5	<5	<15
MW-66	11/01/01	<5	<5	<5	<10
MW-66	04/19/02	<5	<5	<5	<5
MW-66	10/16/02	<5	<5	<5	<5
MW-66	04/08/03	<5	<5	<5	<5
MW-66	10/22/03	<5	<5	<5	<5
MW-66	04/06/04	<5	<5	<5	<5
MW-66	04/21/05	<5	<5	<5	<15
MW-66	04/19/06	<2.57	<2.74	<2.03	<5.81
MW-66	04/18/07	<5	<5	<5	<15
MW-66	05/27/09	<1	<1	<1	<1
MW-66	06/22/10	<1	<1	<1	<1
MW-66	06/30/11	<1	<1	<1	<3
MW-66	06/28/12	<1	<1	<1	<3
MW-66	06/28/13	<1	17.9	<1	<3
MW-66	06/27/14	<1	<1	<1	<3
MW-66	04/29/15	<1	<1	<1	<3
MW-66	05/24/16	<1	<1	<1	<3
MW-70	**09/01/91**	**<1**	**--**	**--**	**--**
MW-70	12/01/91	<1	<1	<1	<1
MW-70	04/01/92	3	17	<3	8
MW-70	07/01/92	<1	3	1	13
MW-70	10/01/92	11	40	63	60
MW-70	01/01/93	<3	<3	8	5
MW-70	04/14/93	9	20	<3	4
MW-70	07/13/93	<1	11	3	<3
MW-70	10/12/93	25	19	19	18
MW-70	11/10/93	<4	<4	<4	40
MW-70	01/11/94	<0.5	0.6	<0.5	<0.5
MW-70	04/06/94	<0.5	<0.5	<0.5	<0.5
MW-70	07/18/94	<0.5	<0.5	<0.5	<0.5
MW-70	10/04/94	1.2	4.3	1.3	12
MW-70	01/09/95	<0.5	2.3	<0.5	2.4
MW-70	04/05/95	<0.5	<0.5	<0.5	1.1
MW-70	07/18/95	<0.5	0.8	<0.5	<0.5
MW-70	10/10/95	<0.5	<0.5	<0.5	<0.5
MW-70	01/18/96	<0.5	<0.5	<0.5	<0.5
MW-70	04/17/96	<0.5	<0.5	<0.5	<0.5
MW-70	07/01/96	<0.5	<0.5	<0.5	<0.5
MW-70	10/01/96	<0.5	<0.5	<0.5	<0.5
MW-70	02/05/97	<0.5	<0.5	<0.5	<0.5

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-70	10/15/97	<0.5	<0.5	<0.5	<0.5
MW-70	06/16/98	<1	<1	<1	<1
MW-70	04/22/99	<5	<5	<5	<10
MW-70	04/28/00	<1	<1	<1	<1
MW-70	10/03/00	<5	<5	<5	<10
MW-70	04/24/01	<5	<5	<5	<15
MW-70	04/18/02	<5	<5	<5	<5
MW-70	04/06/03	<5	<5	<5	<5
MW-70	04/12/04	<5	<5	<5	<5
MW-70	04/26/05	<5	<5	<5	<15
MW-70	04/20/06	<2.57	<2.74	<2.03	<5.81
MW-70	04/24/07	<5	<5	<5	<15
MW-70	05/27/09	<1	<1	<1	<1
MW-70	06/23/10	<1	<1	<1	<1
MW-70	06/30/11	<1	<1	<1	<3
MW-70	06/28/12	<1	<1	<1	<3
MW-70	06/28/13	<1	1.5	<1	<3
MW-70	06/27/14	NS - Well not accessible due to flooding			
MW-70	04/29/15	<1	<1	<1	<3
MW-70	05/24/16	<1	<1	<1	<3
MW-77	**07/21/95**	**<0.5**	**<0.5**	**1.9**	**2.8**
MW-77	01/20/96	<0.5	3.1	<0.5	7.1
MW-77	04/19/96	<0.5	3.8	0.8	2.5
MW-77	07/01/96	8	14	19	35
MW-77	10/01/96	160	320	150	1000
MW-77	05/07/97	8.4	70	8.3	52
MW-77	07/18/97	14	30	11	71
MW-77	12/09/99	<5	<5	<5	<10
MW-77	10/03/00	<5	<5	<5	24
MW-77		Not Sampled - Condensate Present			
MW-77		Not Sampled - Dry			
MW-77	10/21/02	<5	<5	<5	<5
MW-77	04/10/03	<5	<5	<5	<5
MW-77	10/24/03	<5	<5	<5	<5
MW-77	04/07/04	<5	<5	<5	<5
MW-77	04/27/05	<5	<5	<5	<15
MW-77	04/26/06	<2.57	<2.74	<2.03	<5.81
MW-77	04/18/07	<5	<5	<5	<15
MW-77	06/23/10	<1	<1	<1	<1
MW-77	06/30/11	<1	<1	<1	<3
MW-77	06/28/12	Not Sampled - not enough water to collect sample			
MW-77	06/28/13	Not Sampled - not enough water to collect sample			
MW-77	06/26/14	<1	<1	<1	<3
MW-77	04/30/15	Not Sampled - not enough water to collect sample			
MW-81	**06/29/98**	**<1**	**<1**	**<1**	**1.5**
MW-81	06/26/14	Not Sampled - Condensate Present			
MW-81	04/30/15	Not Sampled - Condensate Present			
MW-88	**08/01/96**	**<0.5**	**1.1**	**0.5**	**1**
MW-88	10/01/96	<0.5	<0.5	<0.5	<0.5
MW-88	02/05/97	<0.5	<0.5	<0.5	<0.5

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-88	04/30/97	<0.5	<0.5	<0.5	<0.5
MW-88	10/15/97	<0.5	<0.5	<0.5	<0.5
MW-88	01/29/98	<0.5	<0.5	<0.5	<0.5
MW-88	04/28/98	<0.5	<0.5	<0.5	<0.5
MW-88	06/27/98	<1	<1	<1	<1
MW-88	10/11/98	<0.5	<0.5	<0.5	<0.5
MW-88	02/01/99	1.6	1.8	1.6	4.8
MW-88	04/21/99	<5	<5	<5	<10
MW-88	12/10/99	<5	<5	<5	<10
MW-88	04/28/00	<1	<1	<1	<1
MW-88	10/02/00	<5	<5	<5	<5
MW-88	04/17/01	<5	<5	<5	<15
MW-88	10/31/01	<5	<5	<5	<10
MW-88	04/19/02	<5	<5	<5	<5
MW-88	10/16/02	<5	<5	<5	<5
MW-88	04/08/03	<5	<5	<5	<5
MW-88	10/21/03	<5	<5	<5	<5
MW-88	04/06/04	<5	<5	<5	<5
MW-88	04/21/05	<5	<5	<5	<15
MW-88	04/20/06	<2.57	<2.74	<2.03	<5.81
MW-88	04/19/07	<5	<5	<5	<15
MW-88	05/27/09	<1	<1	<1	<1
MW-88	06/22/10	<1	<1	<1	<1
MW-88	06/30/11	<1	<1	<1	<3
MW-88	06/28/12	<1	<1	<1	<3
MW-88	06/28/13	<1	5.3	<1	<3
MW-88	06/26/14	<1	<1	<1	<3
MW-88	04/29/15	<1	<1	<1	<3
MW-88	05/24/16	<1	<1	<1	<3
MW-106	**02/11/97**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
MW-106	05/07/97	<0.5	<0.5	<0.5	<0.5
MW-106	07/18/97	<0.5	<0.5	<0.5	<0.5
MW-106	04/30/98	<0.5	<0.5	<0.5	<0.5
MW-106	06/28/98	<1	<1	<1	<1
MW-106	04/29/99	<5	<5	<5	<10
MW-106	12/08/99	<5	<5	<5	<10
MW-106	05/01/00	<1	<1	<1	<1
MW-106	10/02/00	<5	<5	<5	<10
MW-106	04/18/01	<5	9.4	<5	<15
MW-106	10/31/01	<5	<5	<5	<10
MW-106	04/17/02	<5	<5	<5	<5
MW-106	10/16/02	<5	7	<5	<5
MW-106	04/09/03	<5	<5	<5	<5
MW-106	10/21/03	<5	<5	<5	<5
MW-106	04/05/04	<5	<5	<5	<5
MW-106	04/20/05	<5	<5	<5	<15
MW-106	04/19/06	<2.57	<2.74	<2.03	<5.81
MW-106	04/18/07	<5	<5	<5	<15
MW-106	06/23/10	<1	<1	<1	<1
MW-106	06/30/11	<1	<1	<1	<3
MW-106	06/28/12	<1	<1	<1	<3
MW-106	06/28/13	<1	1.8	<1	<3

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

Appendix B

Historical BTEX Analytical Data, May 1991 - May 2016

OXY USA WTP Limited Partnership, Indian Basin Gas Plant, Eddy County, New Mexico

Well ID	Sample Date	Analytical Results (µg/L)			
		Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-106	06/26/14	<1	<1	<1	<3
MW-106	04/30/15	<1	<1	<1	<3
MW-106	05/23/16	<1	<1	<1	<3
MW-111	**06/29/98**	**<1**	**<1**	**<1**	**<1**
MW-111	10/11/98	<0.5	<0.5	<0.5	<0.5
MW-111	02/01/99	<0.5	0.8	<0.5	<0.5
MW-111	04/21/99	<5	<5	<5	<10
MW-111	12/13/99	<5	<5	<5	<10
MW-111	04/27/00	<1	<1	<1	<1
MW-111	10/05/00	<5	<5	<5	<10
MW-111	04/18/01	<5	<5	<5	<15
MW-111	11/02/01	<5	<5	<5	<10
MW-111	04/19/02	<5	<5	<5	<5
MW-111	10/16/02	<5	<5	<5	<5
MW-111	04/07/03	<5	<5	<5	6
MW-111	10/22/03	<5	<5	<5	<5
MW-111	04/07/04	<5	<5	<5	5
MW-111	04/21/05	<5	<5	<5	<15
MW-111	04/19/06	<2.57	<2.74	<2.03	<5.81
MW-111	04/18/07	<5	<5	<5	<15
MW-111	05/27/09	<1	<1	<1	<1
MW-111	06/22/10	<1	<1	<1	<1
MW-111	06/30/11	<1	<1	<1	<3
MW-111	06/28/12	<1	<1	<1	<3
MW-111	06/28/13	<1	3.9	<1	<3
MW-111	06/27/14	<1	<1	<1	<3
MW-111	04/30/15	<1	<1	<1	<3
MW-111	05/24/16	<1	<1	<1	<3
MW-113	**08/11/99**	**140**	**<5**	**59**	**390**
MW-113	06/27/14		NS - Condensate Present		
MW-113	04/30/15		NS - Condensate Present		
MW-127	**12/28/99**	**190**	**7.1**	**38**	**16**
MW-127	05/28/09	<1	<1	<1	1.4
MW-127	06/23/10	<1	<1	<1	2.2
MW-127	07/01/11	<1	<1	<1	<3
MW-127	06/28/12	<1	<1	<1	<3
MW-127	06/28/13	<1	2.8	0.48 J	<3
MW-127	06/26/14	<1	<1	<1	<3

Notes:

Concentrations listed in micrograms per liter (ug/L)

<5 Constituent not detected above noted laboratory detection limit

-- Indicates parameter was not analyzed

APPENDIX C

Laboratory Analytical Reports

e-Hardcopy 2.0
Automated Report

Technical Report for

Arcadis

Indian Basin

MT0001115.00002

SGS Accutest Job Number: TC86108

Sampling Dates: 05/24/16 - 05/25/16

Report to:

Arcadis
1004 N. Big Spring, Suite 300
Midland, TX 79701
hank.mcconnell@arcadis-us.com

ATTN: Hank McConnell

Total number of pages in report: **28**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-16-24) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

Sections: 1 2 3 4 5 6

Table of Contents

Sample Summary

Arcadis

Job No: TC86108

Indian Basin
Project No: MT0001115.00002

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC86108-1	05/24/16	14:50		05/27/16	AQ	Water	MW-127
TC86108-2	05/25/16	09:14		05/27/16	AQ	Water	MW-45
TC86108-3	05/25/16	12:41		05/27/16	AQ	Water	MW-49
TC86108-4	05/25/16	14:00		05/27/16	AQ	Water	MW-14
TC86108-5	05/25/16	00:00		05/27/16	AQ	Water	DUP-1
TC86108-6	05/25/16	00:00		05/27/16	AQ	Trip Blank Water	TRIP BLANK

Summary of Hits

Job Number: TC86108
Account: Arcadis
Project: Indian Basin
Collected: 05/24/16 thru 05/25/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC86108-1	**MW-127**					
Chloride		45.9	2.5		mg/l	EPA 300
Solids, Total Dissolved		665	10		mg/l	SM 2540C-2000
TC86108-2	**MW-45**					
Chloride		238	10		mg/l	EPA 300
Solids, Total Dissolved		5400	40		mg/l	SM 2540C-2000
TC86108-3	**MW-49**					
Benzene		13.4	1.0	0.47	ug/l	SW846 8260C
Chloride		379	25		mg/l	EPA 300
Solids, Total Dissolved		4900	40		mg/l	SM 2540C-2000
TC86108-4	**MW-14**					
Chloride		266	10		mg/l	EPA 300
Solids, Total Dissolved		1400	10		mg/l	SM 2540C-2000
TC86108-5	**DUP-1**					
Chloride		245	10		mg/l	EPA 300
Solids, Total Dissolved		5340	40		mg/l	SM 2540C-2000
TC86108-6	**TRIP BLANK**					

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-127		
Lab Sample ID:	TC86108-1	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z16819.D	1	06/01/16	EM	n/a	n/a	VZ4990
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		72-122%
17060-07-0	1,2-Dichloroethane-D4	116%		68-124%
2037-26-5	Toluene-D8	96%		80-119%
460-00-4	4-Bromofluorobenzene	111%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-127		
Lab Sample ID:	TC86108-1	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	45.9	2.5	mg/l	5	06/01/16 15:06	ES	EPA 300
Solids, Total Dissolved	665	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-45		
Lab Sample ID:	TC86108-2	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z16820.D	1	06/01/16	EM	n/a	n/a	VZ4990
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		72-122%
17060-07-0	1,2-Dichloroethane-D4	104%		68-124%
2037-26-5	Toluene-D8	99%		80-119%
460-00-4	4-Bromofluorobenzene	113%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-45		
Lab Sample ID:	TC86108-2	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	238	10	mg/l	20	06/01/16 15:51	ES	EPA 300
Solids, Total Dissolved	5400	40	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-49		
Lab Sample ID:	TC86108-3	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z16821.D	1	06/01/16	EM	n/a	n/a	VZ4990
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	13.4	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		72-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	99%		80-119%
460-00-4	4-Bromofluorobenzene	110%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-49		
Lab Sample ID:	TC86108-3	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	379	25	mg/l	50	06/01/16 16:06	ES	EPA 300
Solids, Total Dissolved	4900	40	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-14		
Lab Sample ID:	TC86108-4	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z16822.D	1	06/01/16	EM	n/a	n/a	VZ4990
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		72-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	98%		80-119%
460-00-4	4-Bromofluorobenzene	110%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-14		
Lab Sample ID:	TC86108-4	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	266	10	mg/l	20	06/01/16 16:51	ES	EPA 300
Solids, Total Dissolved	1400	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	DUP-1		
Lab Sample ID:	TC86108-5	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z16823.D	1	06/01/16	EM	n/a	n/a	VZ4990
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		72-122%
17060-07-0	1,2-Dichloroethane-D4	105%		68-124%
2037-26-5	Toluene-D8	99%		80-119%
460-00-4	4-Bromofluorobenzene	111%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-1		
Lab Sample ID:	TC86108-5	**Date Sampled:**	05/25/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	245	10	mg/l	20	06/01/16 17:06	ES	EPA 300
Solids, Total Dissolved	5340	40	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	TC86108-6	**Date Sampled:**	05/25/16
Matrix:	AQ - Trip Blank Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z16824.D	1	06/01/16	EM	n/a	n/a	VZ4990
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		72-122%
17060-07-0	1,2-Dichloroethane-D4	101%		68-124%
2037-26-5	Toluene-D8	96%		80-119%
460-00-4	4-Bromofluorobenzene	110%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ARCADIS
Infrastructure. Water. Environment. Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # TC 86108

Send Results to:

Contact & Company Name: Aaron Sides (ARCADIS)
Telephone: 432-687-5400
Address: 1004 N. Big Spring St STE 300
Fax: 432-687 5401
City: Midland, State: TX. Zip: 79701
E-mail Address: aaron.sides@arcadis.com

Project Name/Location (City, State): PBGP, New Mexico
Project #: NM000111S. 00002
Sampler's Printed Name: Jerry S. Longwell
Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: BTEX	PARAMETER ANALYSIS & METHOD: Cl, TDS
						B	E				
1 MW-127	5/24/16	1450		X	W			3	1	3	1
2 MW-45	5/25/16	0914		X	W			3	1	3	1
3 MW-47	5/25/16	1241		X	W			3	1	3	1
4 MW-14	5/25/16	1400		X	W			3	1	3	1
5 DUP-1	5/25/16			X	W			3	1	3	1
6 Trip Blank					W			3		3	

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil, SE - Sediment, NL - NAPL/Oil
W - Water, SL - Sludge, SW - Sample Wipe
T - Tissue, A - Air, Other: _____

REMARKS

Tagged by:

Verified by:

VOAs? Y ☒ N ☐

Hcl? Y ☒ N ☐

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Accutest	Cooler Custody Seal (✓)	Printed Name: Jerry S. Longwell	Printed Name: Fed Ex	Printed Name: Fed Ex	Printed Name: Bianca Henry
☒ Cooler packed with ice (✓)	☐ Intact ☐ Not Intact	Signature:	Signature:	Signature:	Signature: Bianca Henry
Specify Turnaround Requirements: Standard	Sample Receipt:	Firm: ARCADIS	Firm/Courier:	Firm/Courier:	Firm:
Shipping Tracking #:	Condition/Cooler Temp: _____	Date/Time: 5/26/16 / 1500	Date/Time:	Date/Time:	Date/Time: 5/27/16 1013

20730826 CofC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results; YELLOW – Lab copy; PINK – Retained by ARCADIS

TC86108: Chain of Custody
Page 1 of 4

ACCUTEST LABORATORIES

COOLER TEMP FORM

TC# 86108

Delivered by (circle one): FedEx/UPS ALGC Driver Client

Date: 5/27/16

Client: ARCADIS

Cooler Number: 1

Thermometer ID: IR4 CF, °C 0 Corrected Temp, °C 1.4

SAMPLES CONTAINED IN COOLER

ORIGIN ID:SGRA (432) 687-5400
TRUDY RODRIGUEZ
ARCADIS - US
1004 N. BIG SPRINGS, SUITE 300

MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 19MAY16
ACTWGT: 55.0 LB MAN
CAD: 0243296/CAFE2912

BILL SENDER

TO SAMPLE MANAGEMENT
SGS ACCUTEST
10165 HARWIN DRIVE
SUITE 150
HOUSTON TX 77036
(713) 271-4700
REF: 45287

FedEx Express

TRK# 0221 6746 8793 3426

RETURNS MON-SAT
PRIORITY OVERNIGHT

FedEx
TRK# 0221 6746 8793 3426

FRI - 27 MAY 10:30A
PRIORITY OVERNIGHT

AB SGRA

77036
TX-US IAH

Part # 156146-434 RIT2 10/13

Form: SM027-04 Rev 08/20/14

TC86108: Chain of Custody
Page 2 of 4

SGS Accutest Sample Receipt Summary

Job Number: TC86108 **Client:** ARCADIS **Project:** NEW MEXICO

Date / Time Received: **Delivery Method:** **Airbill #'s:** 674687933426

No. Coolers: 1 **Therm ID:** IR-4; **Temp Adjustment Factor:** 0; 0;

Cooler Temps (Initial/Adjusted): #1: (1.4/1.4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☑		☐	☐	☑	☐
2. Trip Blank listed on COC:	☑		☐	☐		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☑		☐	☐		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Sample Receipt Log

Job #: TC86108 **Date / Time Received:** 5/27/2016 10:13:00 AM **Initials:** DS

Client: ARCADIS

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC86108-1	500ml	1	3N	N/P	Note #2 - Preservative check not applicable.	IR-4	1.4	0	1.4
1	TC86108-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-1	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-2	500ml	1	3N	N/P	Note #2 - Preservative check not applicable.	IR-4	1.4	0	1.4
1	TC86108-2	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-2	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-2	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-3	500ml	1	3N	N/P	Note #2 - Preservative check not applicable.	IR-4	1.4	0	1.4
1	TC86108-3	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-3	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-3	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-4	500ml	1	3N	N/P	Note #2 - Preservative check not applicable.	IR-4	1.4	0	1.4
1	TC86108-4	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-4	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-4	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-5	500ml	1	3N	N/P	Note #2 - Preservative check not applicable.	IR-4	1.4	0	1.4
1	TC86108-5	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-5	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-5	40ml	4	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-6	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4
1	TC86108-6	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR-4	1.4	0	1.4

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: TC86108
Account: AGMTXM Arcadis
Project: Indian Basin

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ4990-MB	Z16806.D	1	06/01/16	EM	n/a	n/a	VZ4990

The QC reported here applies to the following samples: **Method:** SW846 8260C

TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5, TC86108-6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	110%	72-122%
17060-07-0	1,2-Dichloroethane-D4	109%	68-124%
2037-26-5	Toluene-D8	98%	80-119%
460-00-4	4-Bromofluorobenzene	114%	72-126%

Blank Spike/Blank Spike Duplicate Summary

Job Number: TC86108
Account: AGMTXM Arcadis
Project: Indian Basin

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ4990-BS	Z16803.D	1	06/01/16	EM	n/a	n/a	VZ4990
VZ4990-BSD [a]	Z16804.D	1	06/01/16	EM	n/a	n/a	VZ4990

The QC reported here applies to the following samples: **Method:** SW846 8260C

TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5, TC86108-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	25	27.2	109	27.2	109	0	68-119/30
100-41-4	Ethylbenzene	25	26.6	106	26.0	104	2	71-117/30
108-88-3	Toluene	25	26.2	105	25.5	102	3	73-119/30
1330-20-7	Xylene (total)	75	79.2	106	77.7	104	2	74-119/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	104%	102%	72-122%
17060-07-0	1,2-Dichloroethane-D4	100%	107%	68-124%
2037-26-5	Toluene-D8	99%	98%	80-119%
460-00-4	4-Bromofluorobenzene	104%	103%	72-126%

(a) Insufficient sample available for MS/MSD.

* = Outside of Control Limits.

General Chemistry

6

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC86108
Account: AGMTXM - Arcadis
Project: Indian Basin

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP36494/GN73277	0.50	0.0	mg/l	10	10.8	108.0	90-110%
Solids, Total Dissolved	GN73204	10	0.0	mg/l	500	488	97.6	88-110%

Associated Samples:
Batch GN73204: TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5
Batch GP36494: TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC86108
Account: AGMTXM - Arcadis
Project: Indian Basin

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP36494/GN73277	TC86108-3	mg/l	379	378	0.3	0-20%
Solids, Total Dissolved	GN73204	TC86108-4	mg/l	1400	1410	0.7	0-5%

Associated Samples:
Batch GN73204: TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5
Batch GP36494: TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC86108
Account: AGMTXM - Arcadis
Project: Indian Basin

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP36494/GN73277	TC86108-3	mg/l	379	500	926	109.4	80-120%

Associated Samples:
Batch GP36494: TC86108-1, TC86108-2, TC86108-3, TC86108-4, TC86108-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

e-Hardcopy 2.0
Automated Report

Technical Report for

Arcadis

Indian Basin

MT0001115.0002

SGS Accutest Job Number: TC86114

Sampling Dates: 05/23/16 - 05/24/16

Report to:

Arcadis
1004 N. Big Spring, Suite 300
Midland, TX 79701
hank.mcconnell@arcadis-us.com

ATTN: Hank McConnell

Total number of pages in report: **26**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Richard Rodriguez
Laboratory Director

Client Service contact: Electa Brown 713-271-4700

Certifications: TX (T104704220-16-24) AR (14-016-0) AZ (AZ0769) FL (E87628) KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)

Sections: 1 2 3 4 5 6

Table of Contents

Sample Summary

Arcadis

Job No: TC86114

Indian Basin
Project No: MT0001115.0002

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
TC86114-1	05/24/16	09:13		05/27/16	AQ	Water	MW-70
TC86114-2	05/23/16	18:40		05/27/16	AQ	Water	MW-106
TC86114-3	05/24/16	10:35		05/27/16	AQ	Water	MW-111
TC86114-4	05/24/16	11:45		05/27/16	AQ	Water	MW-66
TC86114-5	05/24/16	13:32		05/27/16	AQ	Water	MW-88

Summary of Hits

Job Number: TC86114
Account: Arcadis
Project: Indian Basin
Collected: 05/23/16 thru 05/24/16

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TC86114-1	**MW-70**					
Chloride		9.6	0.50		mg/l	EPA 300
Solids, Total Dissolved		402	10		mg/l	SM 2540C-2000
TC86114-2	**MW-106**					
Chloride		2.9	0.50		mg/l	EPA 300
Solids, Total Dissolved		388	10		mg/l	SM 2540C-2000
TC86114-3	**MW-111**					
Chloride		43.3	2.5		mg/l	EPA 300
Solids, Total Dissolved		677	10		mg/l	SM 2540C-2000
TC86114-4	**MW-66**					
Chloride		8.1	0.50		mg/l	EPA 300
Solids, Total Dissolved		839	10		mg/l	SM 2540C-2000
TC86114-5	**MW-88**					
Chloride		27.4	1.0		mg/l	EPA 300
Solids, Total Dissolved		975	10		mg/l	SM 2540C-2000

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	MW-70		
Lab Sample ID:	TC86114-1	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0265207.D	1	06/03/16	ZQ	n/a	n/a	VG1976
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		72-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	103%		80-119%
460-00-4	4-Bromofluorobenzene	106%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-70		
Lab Sample ID:	TC86114-1	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	9.6	0.50	mg/l	1	06/01/16 17:21	ES	EPA 300
Solids, Total Dissolved	402	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-106		
Lab Sample ID:	TC86114-2	**Date Sampled:**	05/23/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0265208.D	1	06/03/16	ZQ	n/a	n/a	VG1976
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		72-122%
17060-07-0	1,2-Dichloroethane-D4	110%		68-124%
2037-26-5	Toluene-D8	102%		80-119%
460-00-4	4-Bromofluorobenzene	107%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-106		
Lab Sample ID:	TC86114-2	**Date Sampled:**	05/23/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	2.9	0.50	mg/l	1	06/01/16 17:36	ES	EPA 300
Solids, Total Dissolved	388	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-111		
Lab Sample ID:	TC86114-3	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0265209.D	1	06/03/16	ZQ	n/a	n/a	VG1976
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		72-122%
17060-07-0	1,2-Dichloroethane-D4	108%		68-124%
2037-26-5	Toluene-D8	101%		80-119%
460-00-4	4-Bromofluorobenzene	104%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-111		
Lab Sample ID:	TC86114-3	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	43.3	2.5	mg/l	5	06/01/16 17:51	ES	EPA 300
Solids, Total Dissolved	677	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-66		
Lab Sample ID:	TC86114-4	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0265210.D	1	06/03/16	ZQ	n/a	n/a	VG1976
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		72-122%
17060-07-0	1,2-Dichloroethane-D4	111%		68-124%
2037-26-5	Toluene-D8	101%		80-119%
460-00-4	4-Bromofluorobenzene	107%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-66		
Lab Sample ID:	TC86114-4	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	8.1	0.50	mg/l	1	06/01/16 18:06	ES	EPA 300
Solids, Total Dissolved	839	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW-88		
Lab Sample ID:	TC86114-5	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
Method:	SW846 8260C	**Percent Solids:**	n/a
Project:	Indian Basin		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	G0265211.D	1	06/03/16	ZQ	n/a	n/a	VG1976
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		72-122%
17060-07-0	1,2-Dichloroethane-D4	109%		68-124%
2037-26-5	Toluene-D8	102%		80-119%
460-00-4	4-Bromofluorobenzene	104%		72-126%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-88		
Lab Sample ID:	TC86114-5	**Date Sampled:**	05/24/16
Matrix:	AQ - Water	**Date Received:**	05/27/16
		Percent Solids:	n/a
Project:	Indian Basin		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	27.4	1.0	mg/l	2	06/01/16 18:51	ES	EPA 300
Solids, Total Dissolved	975	10	mg/l	1	05/27/16	BG	SM 2540C-2000

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

TC86114

ARCADIS
Infrastructure · Water · Environment · Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:

Contact & Company Name: Aaron Sidwell / ARCADIS
Telephone: 432-687-5400
Address: 1004 N Big Spring St STE 800
Fax: 432-687-5401
City: Midland State: TX Zip: 79701
E-mail Address: aaron.sidwell@arcadis.com

Project Name/Location (City/State): IBC (ORY) New Mexico
Project #: MT0001115.0002
Sampler's Printed Name: Jerry S. Longwell
Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: BTEX	PARAMETER ANALYSIS & METHOD: Cl, TDS
						B	E				
1 MW-70	5/24/16	0913		X	W			1	4	3	1
2 MW-106	5/23/16	1840		X	W					3	1
3 MW-111	5/24/16	1035		X	W					3	1
4 MW-66	5/24/16	1145		X	W					3	1
5 MW-88	5/24/16	1332		X	W					3	1
6 Trip Blank					W					2	

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

REMARKS

Tagged by:

VOAs? Y ☐ N ☐

HCl? Y ☐ N ☐

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Accutest	Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact	Printed Name: Jerry Silongwell	Printed Name: Fedex	Printed Name: Fedex	Printed Name: Jessica PDB 5/27/16
☒ Cooler packed with ice (✓)		Signature:	Signature:	Signature:	Signature:
Specify Turnaround Requirements: Standard	Sample Receipt: Condition/Cooler Temp: 1.7	Firm: ARCADIS	Firm/Courier:	Firm/Courier:	Firm:
Shipping Tracking #:		Date/Time: 5/26/16 1525	Date/Time:	Date/Time:	Date/Time:

20730826 CofC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by ARCADIS

ACCUTEST LABORATORIES

COOLER TEMP FORM

TC# 86114

Delivered by (circle one): FedEx/UPS ALGC Driver Client

Date: 5/27/16

Client: Arcadis

Cooler Number:

Thermometer ID: #2-9 CF, °C 0.0 Corrected Temp, °C #2-9 4.7

SAMPLES CONTAINED IN COOLER

- DID NOT
- RECEIVED 1-SET OF
- TB LISTED ON CHAIN

ORIGIN ID:SGRA (432) 687-5400
RUDY RODRIGUEZ
ARCADIS - US
1004 N. BIG SPRINGS, SUITE 300
MIDLAND, TX 79701
UNITED STATES US

SHIP DATE: 19MAY16
ACTWGT: 55.0 LB MAN
CAD: 0243296/CAFE2912

BILL SENDER

TO SAMPLE MANAGEMENT
SGS ACCUTEST
10165 HARWIN DRIVE
SUITE 150
HOUSTON TX 77036
(713) 271-4700
REF: 45287

5381/6323/3298

FedEx Express

J151315081301AR

FedEx
TRK# 0221 6746 8793 3437

FRI - 27 MAY 10:30AM
PRIORITY OVERNIGHT

AB SGRA

77036
TX-US IAH

Form: SM027-04 Rev 08/20/14

TC86114: Chain of Custody
Page 2 of 3

SGS Accutest Sample Receipt Summary

Job Number: TC86114 **Client:** ARCADIS **Project:** OXY

Date / Time Received: **Delivery Method:** **Airbill #'s:** 674687933437

No. Coolers: 1 **Therm ID:** IR9; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (4.7/4.7);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:			
3. Cooler media:	Ice (Bag)		

Quality Control Preservation	Y	or	N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐		☑	☐	☐	☐
2. Trip Blank listed on COC:	☑		☐	☐		
3. Samples preserved properly:	☑		☐			
4. VOCs headspace free:	☑		☐	☐		

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments Tripblanks listed on COC, but was not received by lab.

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: TC86114
Account: AGMTXM Arcadis
Project: Indian Basin

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1976-MB	G0265203.D	1	06/03/16	ZQ	n/a	n/a	VG1976

The QC reported here applies to the following samples: **Method:** SW846 8260C

TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.47	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.46	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
1330-20-7	Xylene (total)	ND	3.0	1.2	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	107%	72-122%
17060-07-0	1,2-Dichloroethane-D4	109%	68-124%
2037-26-5	Toluene-D8	101%	80-119%
460-00-4	4-Bromofluorobenzene	106%	72-126%

Blank Spike/Blank Spike Duplicate Summary

Job Number: TC86114
Account: AGMTXM Arcadis
Project: Indian Basin

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VG1976-BS	G0265200.D	1	06/03/16	ZQ	n/a	n/a	VG1976
VG1976-BSD [a]	G0265201.D	1	06/03/16	ZQ	n/a	n/a	VG1976

The QC reported here applies to the following samples: **Method:** SW846 8260C

TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	25	24.4	98	25.1	100	3	68-119/30
100-41-4	Ethylbenzene	25	24.7	99	25.3	101	2	71-117/30
108-88-3	Toluene	25	24.2	97	24.5	98	1	73-119/30
1330-20-7	Xylene (total)	75	73.5	98	75.4	101	3	74-119/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	108%	107%	72-122%
17060-07-0	1,2-Dichloroethane-D4	108%	108%	68-124%
2037-26-5	Toluene-D8	101%	103%	80-119%
460-00-4	4-Bromofluorobenzene	102%	103%	72-126%

(a) Insufficient sample available for MS/MSD.

* = Outside of Control Limits.

General Chemistry

6

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC86114
Account: AGMTXM - Arcadis
Project: Indian Basin

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP36494/GN73277	0.50	0.0	mg/l	10	10.8	108.0	90-110%
Solids, Total Dissolved	GN73204	10	0.0	mg/l	500	488	97.6	88-110%

Associated Samples:
Batch GN73204: TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5
Batch GP36494: TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC86114
Account: AGMTXM - Arcadis
Project: Indian Basin

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP36494/GN73277	TC86108-3	mg/l	379	378	0.3	0-20%
Solids, Total Dissolved	GN73204	TC86108-4	mg/l	1400	1410	0.7	0-5%

Associated Samples:
Batch GN73204: TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5
Batch GP36494: TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: TC86114
Account: AGMTXM - Arcadis
Project: Indian Basin

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP36494/GN73277	TC86108-3	mg/l	379	500	926	109.4	80-120%

Associated Samples:
Batch GP36494: TC86114-1, TC86114-2, TC86114-3, TC86114-4, TC86114-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

APPENDIX D

NMOCD Correspondence

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

February 20, 2009

M. Paul Peacock
Marathon Oil Company
P.O. Box 3128
Houston, TX 77253-3128

RE: Indian Basin Remediation Project Report and Proposed Well Plugging Request for the Marathon's Indian Basin Gas Plant (GW-21)
Eddy County, New Mexico

Dear Mr. Peacock:

The New Mexico Oil Conservation Division (OCD) has reviewed Marathon's report, Evaluation of Natural Attenuation, Indian Basin Remediation Project [IBRP], Eddy County, New Mexico, dated May 12, 2008, and Proposed IBRP Well Plugging Program [Request], dated February 5, 2009. The report and request are substantially acceptable to the OCD. Therefore, the OCD hereby conditionally approves the discontinuance of active remediation at the above-referenced site.

However, at least annual groundwater monitoring for BTEX, TDS and chloride at the 13 proposed wells as specified in the Well Plugging Request plus at an additional two groundwater monitoring wells, MW-81 and MW-113, for a total of 15 wells must continue unless otherwise approved by the OCD. Also, at least semi-annually gauging of depth to groundwater and non-aqueous phase liquid thickness at these 15 wells must continue unless otherwise approved by the OCD. Marathon must continue to submit an annual groundwater monitoring report to the OCD unless otherwise approved by the OCD.

In addition, the material used to plug the 98 (the 100 proposed minus the 2 rejected) groundwater monitoring wells as specified in the Request must be a cement grout with 1% to 3% bentonite. Please submit to the OCD a final plugging report within 180 days of receipt of this letter.

Please be advised that OCD approval of this report and request does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Edward Hansen of my staff at 505-476-3489 or edwardj.hansen@state.nm.us.

Sincerely,

Wayne Price
Environmental Bureau Chief

WP:EJH:ejh

cc: OCD; Artesia District Office
Terry Persaud, P.E., Marathon Oil Company, P.O. Box 3128, Houston, TX 77253-3128

From: Hansen, Edward J., EMNRD [mailto:edwardj.hansen@state.nm.us]
Sent: Wednesday, June 17, 2009 12:42 PM
To: Persaud, Terry
Cc: Caudill, Ted L.; Kurki, Vijay K.; Newman, Dennis (Houston); alan.reed@arcadis-us.com; Lowe, Leonard, EMNRD
Subject: GW-21 Plugging Report Approval

RE: "Indian Basin Remediation Project Monitoring Well Plugging Report"
for the Marathon's (now OXY's)
Indian Basin Gas Plant (GW-21)
Unit Letter G, Section 23, T21S, R23E, NMPM, Eddy County, New Mexico
Plugging Report Approval

Dear Mr. Persaud:

The New Mexico Oil Conservation Division (OCD) has received the groundwater monitoring well plugging report for the Indian Basin Gas Plant (GW-21), dated June 11, 2009, and has conducted a review of the report. The plugging report, submitted for the above-referenced site, indicates that Marathon has met the plugging requirements. Therefore, the OCD hereby approves the plugging report. However, the OCD is anticipating the 2009 annual groundwater monitoring report for the remaining 15 monitoring wells this month.

Please be advised that OCD approval of this report does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

APPENDIX E

USEPA Low-flow Purging and Sampling Procedures

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II

GROUND WATER SAMPLING PROCEDURE
LOW STRESS (Low Flow) PURGING AND SAMPLING

I. SCOPE & APPLICATION

This Low Stress (or Low-Flow) Purging and Sampling Procedure is the EPA Region II standard method for collecting low stress (low flow) ground water samples from monitoring wells. Low stress Purging and Sampling results in collection of ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by minimizing stress on the geological formation and minimizing disturbance of sediment that has collected in the well. The procedure applies to monitoring wells that have an inner casing with a diameter of 2.0 inches or greater, and maximum screened intervals of ten feet unless multiple intervals are sampled. The procedure is appropriate for collection of ground water samples that will be analyzed for volatile and semi-volatile organic compounds (VOCs and SVOCs), pesticides, polychlorinated biphenyls (PCBs), metals, and microbiological and other contaminants in association with all EPA programs.

This procedure does not address the collection of light or dense non-aqueous phase liquids (LNAPL or DNAPL) samples, and should be used for aqueous samples only. For sampling NAPLs, the reader is referred to the following EPA publications: DNAPL Site Evaluation (Cohen & Mercer, 1993) and the RCRA Ground-Water Monitoring: Draft Technical Guidance (EPA/530-R-93-001), and references therein.

II. METHOD SUMMARY

The purpose of the low stress purging and sampling procedure is to collect ground water samples from monitoring wells that are representative of ground water conditions in the geological formation. This is accomplished by setting the intake velocity of the sampling pump to a flow rate that limits drawdown inside the well casing.

Sampling at the prescribed (low) flow rate has three primary benefits. First, it minimizes disturbance of sediment in the bottom of the well, thereby producing a sample with low turbidity (i.e., low concentration of suspended particles). Typically, this saves time and analytical costs by eliminating the need for collecting and analyzing an additional filtered sample from the same well. Second, this procedure

minimizes aeration of the ground water during sample collection, which improves the sample quality for VOC analysis. Third, in most cases the procedure significantly reduces the volume of ground water purged from a well and the costs associated with its proper treatment and disposal.

III. ADDRESSING POTENTIAL PROBLEMS

Problems that may be encountered using this technique include a) difficulty in sampling wells with insufficient yield; b) failure of one or more key indicator parameters to stabilize; c) cascading of water and/or formation of air bubbles in the tubing; and d) cross-contamination between wells.

Insufficient Yield

Wells with insufficient yield (i.e., low recharge rate of the well) may dewater during purging. Care should be taken to avoid loss of pressure in the tubing line due to dewatering of the well below the level of the pump's intake. Purging should be interrupted before the water level in the well drops below the top of the pump, as this may induce cascading of the sand pack. Pumping the well dry should therefore be avoided to the extent possible in all cases. Sampling should commence as soon as the volume in the well has recovered sufficiently to allow collection of samples. Alternatively, ground water samples may be obtained with techniques designed for the unsaturated zone, such as lysimeters.

Failure to Stabilize Key Indicator Parameters

If one or more key indicator parameters fails to stabilize after 4 hours, one of three options should be considered: a) continue purging in an attempt to achieve stabilization; b) discontinue purging, do not collect samples, and document attempts to reach stabilization in the log book; c) discontinue purging, collect samples, and document attempts to reach stabilization in the log book; or d) Secure the well, purge and collect samples the next day (preferred). The key indicator parameter for samples to be analyzed for VOCs is dissolved oxygen. The key indicator parameter for all other samples is turbidity.

Cascading

To prevent cascading and/or air bubble formation in the tubing, care should be taken to ensure that the flow rate is sufficient to maintain pump suction. Minimize the length and diameter of tubing (i.e., 1/4

or 3/8 inch ID) to ensure that the tubing remains filled with ground water during sampling.

Cross-Contamination

To prevent cross-contamination between wells, it is strongly recommended that dedicated, in-place pumps be used. As an alternative, the potential for cross-contamination can be reduced by performing the more thorough "daily" decontamination procedures between sampling of each well in addition to the start of each sampling day (see Section VII, below).

Equipment Failure

Adequate equipment should be on-hand so that equipment failures do not adversely impact sampling activities.

IV. PLANNING DOCUMENTATION AND EQUIPMENT

- Approved site-specific Field Sampling Plan/Quality Assurance Project Plan (QAPP). This plan must specify the type of pump and other equipment to be used. The QAPP must also specify the depth to which the pump intake should be lowered in each well. Generally, the target depth will correspond to the mid-point of the most permeable zone in the screened interval. Borehole geologic and geophysical logs can be used to help select the most permeable zone. However, in some cases, other criteria may be used to select the target depth for the pump intake. In all cases, the target depth must be approved by the EPA hydrogeologist or EPA project scientist.

- Well construction data, location map, field data from last sampling event.

- Polyethylene sheeting.

- Flame Ionization Detector (FID) and Photo Ionization Detector (PID).

- Adjustable rate, positive displacement ground water sampling pump (e.g., centrifugal or bladder pumps constructed of stainless steel or Teflon). A peristaltic pump may only be used for inorganic sample collection.

- Interface probe or equivalent device for determining the presence or absence of NAPL.

- Teflon or Teflon-lined polyethylene tubing to collect samples for organic analysis. Teflon or Teflon-lined polyethylene, PVC, Tygon or polyethylene tubing to collect samples for inorganic analysis. Sufficient tubing of the appropriate material must be available so that each well has dedicated tubing.

- Water level measuring device, minimum 0.01 foot accuracy, (electronic preferred for tracking water level drawdown during all pumping operations).

- Flow measurement supplies (e.g., graduated cylinder and stop watch or in-line flow meter).

- Power source (generator, nitrogen tank, etc.).
- Monitoring instruments for indicator parameters. Eh and dissolved oxygen must be monitored in-line using an instrument with a continuous readout display. Specific conductance, pH, and temperature may be monitored either in-line or using separate probes. A nephalometer is used to measure turbidity.

- Decontamination supplies (see Section VII, below).

- Logbook (see Section VIII, below).

- Sample bottles.

- Sample preservation supplies (as required by the analytical methods).

- Sample tags or labels, chain of custody.

V. SAMPLING PROCEDURES

Pre-Sampling Activities

1. Start at the well known or believed to have the least contaminated ground water and proceed systematically to the well with the most contaminated ground water. Check the well, the lock, and the locking cap for damage or evidence of tampering. Record observations.

2. Lay out sheet of polyethylene for placement of monitoring and sampling equipment.

3. Measure VOCs at the rim of the unopened well with a PID and FID instrument and record the reading in the field log book.

4. Remove well cap.

5. Measure VOCs at the rim of the opened well with a PID and an FID instrument and record the reading in the field log book.

6. If the well casing does not have a reference point (usually a V-cut or indelible mark in the well casing), make one. Note that the reference point should be surveyed for correction of ground water elevations to the mean geodesic datum (MSL).

7. Measure and record the depth to water (to 0.01 ft) in all wells to be sampled prior to purging. Care should be taken to minimize disturbance in the water column and dislodging of any particulate matter attached to the sides or settled at the bottom of the well.

8. If desired, measure and record the depth of any NAPLs using an interface probe. Care should be taken to minimize disturbance of any sediment that has accumulated at the bottom of the well. Record the observations in the log book. If LNAPLs and/or DNAPLs are detected, install the pump at this time, as described in step 9, below. Allow the well to sit for several days between the measurement or sampling of any DNAPLs and the low-stress purging and sampling of the ground water.

Sampling Procedures

9. Install Pump: Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified for that well in the EPA-approved QAPP or a depth otherwise approved by the EPA hydrogeologist or EPA project scientist. The pump intake must be kept at least two (2) feet above the bottom of the well to prevent disturbance and resuspension of any sediment or NAPL present in the bottom of the well. Record the depth to which the pump is lowered.

10. Measure Water Level: Before starting the pump, measure the water level again with the pump in the well. Leave the water level measuring device in the well.

11. Purge Well: Start pumping the well at 200 to 500 milliliters per minute (ml/min). The water level should be monitored approximately every five minutes. Ideally, a steady flow rate should be maintained that results in a stabilized water

level (drawdown of 0.3 ft or less). Pumping rates should, if needed, be reduced to the minimum capabilities of the pump to ensure stabilization of the water level. As noted above, care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment.

12. Monitor Indicator Parameters: During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and DO) approximately every five minutes. The well is considered stabilized and ready for sample collection when the indicator parameters have stabilized for three consecutive readings as follows (Puls and Barcelona, 1996):

    ±0.1 for pH
    ±3% for specific conductance (conductivity)
    ±10 mv for redox potential
    ±10% for DO and turbidity

    Dissolved oxygen and turbidity usually require the longest time to achieve stabilization. The pump must not be removed from the well between purging and sampling.

13. Collect Samples: Collect samples at a flow rate between 100 and 250 ml/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 ft. VOC samples must be collected first and directly into sample containers. All sample containers should be filled with minimal turbulence by allowing the ground water to flow from the tubing gently down the inside of the container.

    Ground water samples to be analyzed for volatile organic compounds (VOCs) require pH adjustment. The appropriate EPA Program Guidance should be consulted to determine whether pH adjustment is necessary. If pH adjustment is necessary for VOC sample preservation, the amount of acid to be added to each sample vial prior to sampling should be determined, drop by drop, on a separate and equal volume of water (e.g., 40 ml). Ground water purged from the well prior to sampling can be used for this purpose.

14. Remove Pump and Tubing: After collection of the samples, the tubing, unless permanently installed, must be properly discarded or dedicated to the well for resampling by hanging the tubing inside the well.

15. Measure and record well depth.

16. Close and lock the well.

VI. FIELD QUALITY CONTROL SAMPLES

Quality control samples must be collected to determine if sample collection and handling procedures have adversely affected the quality of the ground water samples. The appropriate EPA Program Guidance should be consulted in preparing the field QC sample requirements of the site-specific QAPP.

All field quality control samples must be prepared exactly as regular investigation samples with regard to sample volume, containers, and preservation. The following quality control samples should be collected during the sampling event:

- Field duplicates
- Trip blanks for VOCs only
- Equipment blank (not necessary if equipment is dedicated to the well)

As noted above, ground water samples should be collected systematically from wells with the lowest level of contamination through to wells with highest level of contamination. The equipment blank should be collected after sampling from the most contaminated well.

VII. DECONTAMINATION

Non-disposable sampling equipment, including the pump and support cable and electrical wires which contact the sample, must be decontaminated thoroughly each day before use ("daily decon") and after each well is sampled ("between-well decon"). Dedicated, in-place pumps and tubing must be thoroughly decontaminated using "daily decon" procedures (see #17, below) prior to their initial use. For centrifugal pumps, it is strongly recommended that non-disposable sampling equipment, including the pump and support cable and electrical wires in contact with the sample, be decontaminated thoroughly each day before use ("daily decon").

EPA's field experience indicates that the life of centrifugal pumps may be extended by removing entrained grit. This also permits inspection and replacement of the cooling water in centrifugal pumps. All non-dedicated sampling equipment (pumps, tubing, etc.) must be

decontaminated after each well is sampled ("between-well decon," see #18 below).

17. **Daily Decon**

A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5 minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.

C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

D) Disassemble pump.

E) Wash pump parts: Place the disassembled parts of the pump into a deep basin containing 8 to 10 gallons of non-phosphate detergent solution. Scrub all pump parts with a test tube brush.

F) Rinse pump parts with potable water.

G) Rinse the following pump parts with distilled/ deionized water: inlet screen, the shaft, the suction interconnector, the motor lead assembly, and the stator housing.

H) Place impeller assembly in a large glass beaker and rinse with 1% nitric acid (HNO_3).

I) Rinse impeller assembly with potable water.

J) Place impeller assembly in a large glass bleaker and rinse with isopropanol.

K) Rinse impeller assembly with distilled/deionized water.

18. **Between-Well Decon**

A) Pre-rinse: Operate pump in a deep basin containing 8 to 10 gallons of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.
B) Wash: Operate pump in a deep basin containing 8 to 10 gallons of a non-phosphate detergent solution, such as Alconox, for 5

minutes and flush other equipment with fresh detergent solution for 5 minutes. Use the detergent sparingly.

C) Rinse: Operate pump in a deep basin of potable water for 5 minutes and flush other equipment with potable water for 5 minutes.

D) Final Rinse: Operate pump in a deep basin of distilled/deionized water to pump out 1 to 2 gallons of this final rinse water.

VIII. FIELD LOG BOOK

A field log book must be kept each time ground water monitoring activities are conducted in the field. The field log book should document the following:

- Well identification number and physical condition.
- Well depth, and measurement technique.
- Static water level depth, date, time, and measurement technique.
- Presence and thickness of immiscible liquid layers and detection method.
- Collection method for immiscible liquid layers.
- Pumping rate, drawdown, indicator parameters values, and clock time, at three to five minute intervals; calculate or measure total volume pumped.
- Well sampling sequence and time of sample collection.
- Types of sample bottles used and sample identification numbers.
- Preservatives used.
- Parameters requested for analysis.
- Field observations of sampling event.
- Name of sample collector(s).
- Weather conditions.
- QA/QC data for field instruments.

IX. REFERENCES

Cohen, R.M. and J.W. Mercer, 1993, DNAPL Site Evaluation, C.K. Smoley Press, Boca Raton, Florida.

Puls, R.W. and M.J. Barcelona, 1996, Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures, EPA/540/S-95/504.

U.S. EPA, 1993, RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA/530-R-93-001.

U.S. EPA Region II, 1989, CERCLA Quality Assurance Manual.

Arcadis U.S., Inc.

1004 North Big Spring Street

Suite 300

Midland, Texas 79701

Tel 432 687 5400

Fax 432 687 5401

www.arcadis.com